

POST-SECONDARY EDUCATION IN CANADA Strategies for Success



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The Canadian Council on Learning is an independent, not-for-profit corporation funded through an agreement with Human Resources and Social Development Canada. Its mandate is to promote and support evidence-based decisions about learning throughout all stages of life, from early childhood through to the senior years.

MESSAGE FROM THE CHAIR



Robert Giroux
Chair of the Board

It is said that knowledge is power. That has never been more true than today. In the 21st century knowledge economy—when a country's comparative advantage is measured by its citizens' productivity, skills and capacity to innovate—the most economically powerful and prosperous countries are those that enjoy a knowledge advantage.

The Canadian Council on Learning (CCL) has a mandate to provide Canadians with the most current information about Canada's ability to meet this challenge, identifying areas requiring action and highlighting successful approaches to learning for individuals, educators, employers and policy-makers. Our activities span the entire spectrum of learners—from children and youth to working-age adults—and the many settings where learning takes place—in the home, classroom, community and workplace.

To support lifelong learning in Canada CCL operates knowledge centres that focus on specific aspects of learning, works with provincial and territorial governments and NGOs to create learning networks, undertakes research, supports knowledge exchange through conferences, forums and roundtables, and develops innovative measures to assess Canadians' progress in achieving their learning potential. Over the past few years, the Canadian Council on Learning has created a range of groundbreaking tools, such as the Composite Learning Index and annual report on the State of Learning in Canada, to assist the country's decision-makers as they advance Canada's social and economic goals.

Given that roughly two-thirds of new job openings now require some form of post-secondary credentials, one area of learning Canada must pay close attention to is post-secondary education. Few things matter more to the livelihood of individual Canadians, the welfare of Canada's communities and the country's long-term prospects than post-secondary education. If Canada is to remain a world-leading economy and progressive society, it must continue to have one of the best PSE sectors in the world.

For the second consecutive year, we have prepared a report on the sector's strengths and weaknesses from a Canada-wide perspective, identifying emerging trends across the country and comparing them with the actions of other countries around the world. This year we have gone further, developing constructive strategies for national consideration that, if adopted, could significantly improve Canada's PSE performance.

At a time when knowledge matters more than ever before, it is clearly in Canada's vested interest to optimize learning opportunities for all Canadians. CCL is committed to working with stakeholders and interested Canadians from coast to coast to coast to make sure that happens.

A handwritten signature in black ink, appearing to read 'Robert Giroux'.

Chair of the Board

MESSAGE FROM THE PRESIDENT AND CEO



Paul Cappon
President and CEO

Both popular and specialist media in Canada are currently replete with concern about our aging population and its impact on the future prosperity of the country.

It is universally acknowledged that this country is entering a period of restricted labour growth that cannot be compensated simply by recourse to more immigration. Understanding is growing also that improvement in productivity becomes the principal hope for sustainable economic growth in light of an aging workforce.

Enhanced productivity in turn is recognized to be linked, above all, to our ability to improve through a better educated, highly skilled, creative and innovative workforce in all age groups.

Canadian hopes for future prosperity, then, are pinned on education, especially post-secondary education (PSE) in its broadest sense, including not only public universities and community colleges, but also private institutes, apprenticeships, work place training and the informal learning in which Canadians engage at all stages of their lives. In its 2006 budget, the federal government affirmed its understanding of the broad scope of PSE endeavours by supporting some interesting and important innovations in skills and training.

By some measures, the PSE sector in Canada has accomplished much, producing one of the most highly educated populations in the world and contributing to the advancement of knowledge in many fields.

Is there good reason to believe that the PSE sector, as it now operates countrywide, will be able to yield the results that will propel Canada to those higher rates of productivity and prosperity that would support our collective well-being? Is it the case that Canada is establishing the conditions for success in a post-secondary education field crowded with eager and effective international competitors, some of whom are well down the track, with others pushing to the starting line?

One response to these questions might be that there are both positive and troubling signs when comparing Canadian PSE to that of other developed countries. In its inaugural annual report on pan-Canadian PSE in 2006, *A Positive Record – An Uncertain Future*, the Canadian Council on Learning found indeed that this country leads in some important respects at the moment, and is weak or very weak in others, when contrasted with partner and competitor countries. The glass could be viewed as half full. However, we noted also that the glass might be considered half empty because our comparative advantages in some domains are being eroded through enhanced efforts by other member countries of the Organisation for Economic Co-operation and Development.

A decisive question reveals the vulnerability of the Canadian position in PSE in relation both to other countries and to the issue of future productivity and prosperity through enhanced PSE education, skills, and training: irrespective of current performance and standing of PSE sectors in various countries, which nations are establishing, on a systematic basis, the prerequisites for future success? Is Canada creating the structures, practices and mechanisms that will make it more—or less—likely that the sector will contribute as fully as its potential allows to the economic and social goals of our land?

To this key question, the response in 2006 was clearly negative. Canada is distinctive as the country with no stated national goals, no national measures of achievement for key objectives and very little cohesion and coordination countrywide. Under these circumstances, it was difficult to imagine how—despite the myriad strengths of individual post-secondary institutions (PSIs) and the committed character of many outstanding Canadian educators—the country would succeed. The problem identified was not the attributes or accountability of individual institutions; it was the paucity of pan-Canadian information and any comprehensive national framework or planning process.

The mission of the Canadian Council on Learning is, in part, to describe our learning realities. If we have a remit to identify issues, equally we have a responsibility to report potential strategies for success. In last year's account, we found that what we do not know can hurt us; that we must provide decision makers the best tools available to chart their courses.

In recognizing that PSE is fundamental to the competitiveness and to the welfare of their societies, both unitary and federal states—and even multinational entities like the European Union—have developed robust systems of information gathering on PSE in order to facilitate policy and planning. Many are actively implementing national agendas for PSE.

Shortly before release of CCL's 2006 PSE report, the first national assessment of PSE in the United States¹ made headlines. Their Commission expressed alarm about the ability of that country to compete internationally unless it developed a deliberate national strategy for tertiary education.

To place in perspective the contrast between U.S. anxiety and apparent Canadian equanimity over the future capacity and effectiveness of our respective PSE sectors, we note: that U.S. productivity and per capita GDP are much higher than Canada's, and that their productivity is increasing at much faster rates; that the U.S. is the world's highest per capita spender on PSE; that the U.S. is world leader in the research and development that drives innovation and productivity; and that U.S. universities, a benchmark for many of our Canadian universities, dominate any world ranking of foremost PSIs.

In light of these divergences, all favourable to the U.S., should Canada be complacent if our southern competitor is apprehensive?

In 2006, CCL's report outlined the kinds of information that would be required to allow decision-makers to discern optimal courses of action. This year, we deepen the analysis of Canadian attainment in the sector, over time and in comparison with other countries. More significantly, we begin the process of setting out the conditions for sustained success—defined as maximizing the benefits of PSE for individuals and their communities, and as enabling Canada to improve productivity and maintain prosperity even in the context of an aging population and workforce.

The two most significant provisions are captured in the parts of this report proposing a PSE data strategy and a way to move toward a pan-Canadian framework for PSE. The terms may appear subdued and technical, but their meanings are profound.

Without a full set of relevant information on a pan-Canadian basis, it will not be possible to build a long-term successful PSE sector countrywide—this despite the understanding of the imperative of excellence in tertiary education that animates all levels of government, as well as Canadians and their PSIs.

The second provision involves taking the practical and measured steps required to establish such a pan-Canadian framework. Taken together, the pan-Canadian PSE information system and the broad outline of a potential pan-Canadian approach represent both the preconditions and *strategies for success*. They offer pragmatic means by which Canada can move from diagnosis to deed, from consideration of strengths and deficiencies to tangible actions by which the country can *move the yardsticks*, enabling Canadians to benefit fully from the magnificent promise of postsecondary education.

In generating these circumstances, there is no need to revolutionize. The work involves patiently building a pan-Canadian platform based on existing elements in place in various parts of the country, benefitting from models in other countries, and demonstrating the will and energy to overcome impediments in creative and respectful ways for the common good.

It is my belief that we can achieve all this in full recognition of jurisdictional arrangements and competencies. Constructing a countrywide PSE framework is a crucible that will immensely influence our collective futures.

We are hopeful that a future edition of CCL's review of PSE in Canada will be able to report that conditions are in place to optimize benefits of the PSE sector and its contribution to the prosperity and well-being of the country as a whole.



President and CEO

1 U.S. Department of Education. A test of leadership: Charting the Future of U.S. Higher Education. A Report of the Commission Appointed by Secretary of Education Margaret Spellings (September 2006).

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EXECUTIVE SUMMARY

OVERVIEW

In our 2006 report, *Canadian Post-secondary Education: A Positive Record – An Uncertain Future*, CCL soberly articulated the various reasons for which uncertainty clouds the future contributions that the post-secondary education sector may make to Canada's economic and social goals. Despite the myriad strengths that PSE educators and institutions have demonstrated over many years, the absence of clear pan-Canadian goals, measures of achievement of goals and cohesion among the various facets of PSE led us to express deep reservations.

The mission of the Canadian Council on Learning is, in part, to describe our learning realities. If we have a remit to identify issues, equally we have a responsibility to report potential strategies for success. In last year's account, we found that what we do not know can hurt us; that we must develop pan-Canadian information about PSE that can provide decision-makers the best tools available to determine policies. We also found that almost all other developed countries have built not only the national information systems required to optimize policy, but have also—in both unitary and federal states—provided themselves with some of the necessary national tools and mechanisms to adjust, to act and to succeed. Canada has not.

What are the strategies for success in Canadian PSE? This report, CCL's second annual on the state of post-secondary education, only begins to provide answers about:

- the extent to which we are currently attaining pan-Canadian goals,
- the information required for making decisions to maximize benefits of PSE, and
- why and how a pan-Canadian PSE approach might be built, and what it would encompass.

We know that CCL is not alone in asking these questions. We are also aware that many others have valuable contributions to make to the answers. Working together, we must be able to establish conditions for the success in post-secondary education to which Canadians aspire.

Post-secondary education generally refers to academic, technical and vocational courses and programs beyond secondary school, including apprenticeships.

EXECUTIVE SUMMARY

ABOUT THIS REPORT

In 2006, the Canadian Council on Learning produced the first national overview of post-secondary education in Canada. The report, *Canadian Post-secondary Education: A Positive Record – An Uncertain Future*, identified eight goals and objectives derived from the strategic plans for PSE that had been developed by provinces and territories—and presented a series of indicators for each of the eight goals. It cautioned that serious challenges exist and must be resolved with urgency to keep Canada at the forefront educationally and economically. The report underlined that, in order for Canada to advance as a country, it is essential to:

- articulate a set of explicit, well-defined goals and objectives for the PSE sector at the national level;
- develop a clear set of indicators and measures to enable continuous assessment of performance and progress toward the defined goals and objectives; and
- establish mechanisms at the national level that accomplish the tasks in the preceding two points.

Strategies for Success, the second annual report from the Canadian Council on Learning on the post-secondary education sector in Canada, builds on the priorities identified last year.

Like the 2006 report, Part I of *Strategies for Success* examines the sector from a countrywide perspective, drawing on domestic and international statistics and indicators for the eight identified goals and objectives for PSE. While some modest gains have been made, Canadians can take little comfort from this year's findings. For the most part, the available data indicate that Canada continues to lag other jurisdictions, many of which have undertaken concerted post-secondary agendas to improve their prosperity and international competitiveness.

Our country has fundamental data gaps. For example, Canada:

- does not have the information required to assess PSE capacity versus labour-market needs,
- has no useful picture of the country's private providers of PSE (who they are, what they do, their capacity, their enrolment figures, what happens to their graduates),

- has very little information since 1999 about its community colleges regarding faculty, enrolment or capacity, and
- can provide only a limited picture of part-time faculty at our universities.

"The lifeblood of good policy is good information. Good information, in turn, requires accurate data carefully analysed. The collection of accurate and meaningful data, analysed to yield information useful for policy development, must be an important function of the proposed commission."

—From the *Advantage New Brunswick* report, by the Commission on Post-Secondary Education in New Brunswick, September 2007

To remedy the incomplete picture of our PSE landscape, Part II of *Strategies for Success* proposes a comprehensive, pan-Canadian data strategy to provide the information needed to strengthen the country's PSE sector (*Part II is summarized on page 18*). Countrywide collection of such information is the first step toward understanding how effectively PSE in Canada is meeting the needs of our learners and our society.

Better information will help:

- learners to make the best educational choices to achieve their personal goals,
- post-secondary institutions to ensure they have the programs and capacity to meet student demand,
- employers to know if they will have the skilled employees they need to succeed, and
- governments to assess how to invest taxpayers' money most effectively.

Data are of no value unless put to use. Part III of *Strategies for Success* outlines how some of Canada's major trading partners are monitoring and reporting on the state of PSE in their countries (*Part III is summarized on page 21*). Many have established benchmarks and, in some cases, targets for tertiary education—to guide their investments in education and training, and to measure the impacts of these expenditures.

EXECUTIVE SUMMARY

Any complacency about Canada's positive record in PSE is misplaced, given that many countries have developed:

- national strategies for collecting robust data,
- national goals for PSE, and
- benchmarks and targets with which to measure progress toward those goals.

That Canada's global competitors have developed such systematic approaches to optimize the benefits of PSE only heightens the urgency for practical steps to be taken within our borders.

It is in this context that Part IV of *Strategies for Success* proposes, as the section title suggests, working "Toward a Pan-Canadian Framework for PSE" (*Part IV is summarized on page 22*). It examines how a more cohesive and systematic approach could assist in addressing specific challenges, including: quality assurance and accreditation; student mobility and credit transfer; and prior learning assessment and recognition (PLAR).

Canada's federal, provincial and territorial governments invested \$36 billion in post-secondary education in 2006–2007. Despite this significant expenditure, there are no pan-Canadian goals or objectives for the sector, or ways to assess how effectively this money is invested.

CCL recognizes that any pan-Canadian approach to post-secondary issues would always be complementary to the existing provincially delivered model and would respect institutional autonomy. *Strategies for Success* recommends building on and enhancing what already works.

"[The Government of British Columbia] should initiate discussions with other governments with a view to obtaining agreement on the collection and reporting of nationally and internationally comparable standards and metrics for data collection and reporting."

—Recommendation from *Campus 2020*, British Columbia, April 2007

Achieving agreement between federal, provincial and territorial governments on a pan-Canadian framework is not inconceivable. The federal government already collaborates with the provinces and territories in the provision of student financial assistance. It contributes a considerable amount to university R&D. It transfers significant amounts to the provinces and territories through the Canada Social Transfer. And, it supports learners and their families through tax measures so they can meet educational costs.

Bolstering PSE in the manner put forth by *Strategies for Success* will strongly position Canada and its citizens to achieve prosperity in the future. Realizing this vision in aid of our collective and individual well-being demands the will and energy to overcome impediments in creative ways. Failure to make progress is not an option.

EXECUTIVE SUMMARY

KEY FINDINGS

PART I: Reporting Performance and Progress of PSE in Canada

A skilled and adaptable workforce

- There is unprecedented demand for post-secondary graduates in the job market. In the decade leading up to 2015, nearly 70% of the projected 1.7 million new jobs are expected to be in management or in occupations usually requiring post-secondary qualifications (university, college or apprenticeship training).
- The growing skills shortage in the labour market will be exacerbated in the coming decade due to numerous trends, including: low apprenticeship-completion rates; limited portability of skills qualifications (only 13% of trades are Red Seal); and a 50% decline over the last decade in the percentage of new immigrants holding skilled-trade qualifications.
- One-quarter of university-degree holders earn less than the average high-school graduate.

Innovation, knowledge creation and knowledge transfer

- Canada's proportion of gross expenditures on R&D (GERD) to GDP ranked 15th among 39 OECD countries in 2005, the same position held by Canada in 2001.
- An international study of 11 OECD countries on degrees granted in technical areas shows that, despite Canada's high educational attainment, it ranked 10th in the share of science and engineering degrees as a percentage of new degrees and ninth in PhDs in science and engineering as a share of graduates.
- Currently, the field of scientific publications is dominated by scientists from the U.S., who produced 35% of publications in science and engineering between 1997 and 2001. Canada ranked sixth during this period, with 4.6% of total scientific publications.
- Canada lacks an independent body—operating at arm's length from PSE providers and their research services—that is charged with assessing the degree to which new knowledge generated by public universities is providing economic and social benefits to society.

Active, healthy citizenry

- Individuals with higher levels of education perceive themselves to be in better health.
- The OECD's 2006 *Society at a Glance* report found that, in general, the percentage of people reporting a high level of life satisfaction increases with the level of education.
- The percentage of people donating to charities and the average amount donated both rise with levels of education: more than 90% of those holding a PSE certificate or degree donated in 2004.

Quality PSE

- Canada is one of the few advanced countries to lack a national quality-assurance agency.
- The PSE sector is becoming increasingly complex, with the rise of private post-secondary institutions and the emergence of university colleges. There is a need to ensure that credentials earned will be recognized.
- Canada has no mechanism to track what happens to students (and the public investment in their education) once they leave a post-secondary institution. For example, there is no comprehensive, national information about students who drop out, change courses, change institutions, or move from university to college.
- A study on retention and attrition by the Canada Millennium Scholarship Foundation (CMSF) found that 20% to 25% of first-year students do not proceed to second year. An additional 20% to 30% leave PSE in subsequent years.

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Access

- As of 2004, Canada's university attainment rate ranked fifth among OECD countries.
- Canada lacks a comprehensive assessment of the sector's capacity to meet the learning demands of students.
- Pan-Canadian mechanisms do not exist for credit transfer or prior learning assessment and recognition (PLAR).
- Demographic projections indicate that PSE's traditional age group (18–24) will peak in 2013 and decline over the following two decades.
- The most significant barriers to access are informational and motivational, which are related to perceptions about the costs and benefits of PSE. These barriers were cited by 44% as the reasons for not attending PSE.
- After being an early leader in the field of e-learning, Canada has been slower to incorporate online components into PSE programs. Canada lacks a national e-learning strategy.

Access for under-represented groups

- The available data show a significant increase in PSE participation among Aboriginal people over the past 15-year period. Nonetheless, Aboriginal attendance and participation rates are still well below Canadian averages.
- Enrolments both for men and women at university are at all-time highs, but female students now account for about 58% of bachelor-degree program enrolment. Males now constitute a new under-represented group. In 2004, 61% of all undergraduate degrees were earned by women.
- Despite overall lower PSE participation rates for youth from lower-income families, the participation rate for youth attending college does not appear to be adversely affected by income. Youth from all quartiles have an equal propensity to attend college.

Lifelong learning

- The PSE sector in Canada needs to improve how it responds to the requirements of non-traditional learners (e.g., older adults, recent immigrants, people with disabilities and Aboriginal people). Recognition of prior learning and acceptance of credentials earned in other provinces or countries would help increase access.
- Working Canadians' recurring need for education and training opportunities means that post-secondary institutions will have to forge stronger links with the workplace.
- The emergence of regional labour markets underscores the need to reduce barriers to learner and worker mobility.
- Other countries have been more successful than Canada in encouraging employer-supported training and lifelong learning.

Affordable and sustainable PSE

- Learners' investments in post-secondary education are increasing more rapidly than the public rate of investment, indicating a shift in the financial burden toward the individual.
- Tuition fees, which are not learners' only costs associated with PSE, have increased at nearly four times the rate of inflation (as measured by the Consumer Price Index) from 1990–1991 to 2004–2005.
- The percentage of students requiring financial assistance has increased. The proportion of graduates who borrowed rose from 45% in 1995 to 56% in 2000 and 59% in 2006.
- Between 2003 and 2006, the percentage of college students who accumulated more than \$15,000 in debt increased from 17% to 29%.

EXECUTIVE SUMMARY

DETAILED FINDINGS

PART I: Reporting Performance and Progress of PSE in Canada

A skilled and adaptable workforce

In the decade leading up to 2015, nearly 70% of the projected 1.7 million new jobs in Canada are expected to be in management or in occupations usually requiring post-secondary qualification (university, college or apprenticeship training). This reality, in combination with other factors (e.g., limited portability of credentials in skilled trades, low apprenticeship-completion rates, emerging regional labour markets, Canada's aging workforce and the declining participation of male students in PSE), is causing labour and skills shortages. It is crucial that the country's post-secondary sector be able to meet these challenges.

There are some encouraging signs:

- Since 1990, the percentage of the population holding a bachelor's degree has almost doubled.
- The percentage of the population, aged 15 and over, with master's and doctoral degrees has risen from 3.3% in 1990 to 6% in 2006.

Yet, the latest data indicate that there is room for improvement:

- Between 1991 and 2004, registrations in apprenticeship programs have increased by 38.8%. However, there has not been a corresponding increase in completion rates over the same period, despite shortages in some skilled trades.
- Just 13% of skilled trades in Canada are Red Seal—meaning that nearly nine of every 10 trade certifications are not recognized outside the jurisdiction in which they were earned.
- Unemployment rates for those with a university degree are significantly lower than for those with lesser educational qualifications. Over the last 15 years, unemployment rates for those with less than a high-school education have been three times higher than unemployment rates for those with a university degree.
- One-quarter of university-degree holders earn less than the average high-school graduate.

WHAT DOES THIS MEAN?

Although Canada has a positive record in PSE, the country is being rivalled by the concerted efforts undertaken by other countries to improve PSE performance and outcomes. Just three decades ago North Americans accounted for more than one-third of post-secondary students worldwide. Students from Canada and the U.S. now make up one-sixth of global enrolments.

As the information age matures, the resulting demographic, social and economic shifts require attention and action from the PSE sector in Canada. The increasing demand for an adaptable workforce, for example, demonstrates the need for better and stronger links between workplaces and post-secondary institutions (PSIs) in Canada.

Consequently, PSE must enhance its response to the needs of non-traditional learners, such as mature learners, recent immigrants, people with disabilities and Aboriginal people. This requirement would be heightened should economic conditions become less favourable and those who have abandoned PSE become unemployed. Failure to address the needs of non-traditional learners could result in skills gaps in Canada's labour market, especially in the trades sector, given the continuing low apprenticeship-completion rates and the lack of coordinated credit-transfer systems.

Canada must also examine why so many PSE graduates are earning below their expected potential and determine whether their skill sets are being underutilized, thereby undermining potential gains in productivity for the country as a whole.

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Innovation, knowledge creation and knowledge transfer

Knowledge creation and transfer are key drivers of a productive economy and prosperous society. In Canada, research and development (R&D) are carried out across multiple sectors, but particularly by the PSE sector. Canada relies more heavily on its post-secondary institutions for R&D than most OECD countries.

Among the positive recent trends:

- Support for university R&D in Canada has risen at twice the growth rate of R&D in the business sector over the past 10 years.
- Canada's total research personnel increased by 38% between 1994 and 2004.
- A comparison of Canadian and U.S. commercialization results suggests that Canadian universities compare favourably to their U.S. counterparts in invention disclosures, licence options and creation of spin-offs.

However, there continue to be troubling trends:

- Canada's proportion of gross expenditures on R&D (GERD) to GDP ranked 15th among 39 OECD countries in 2005, the same position held by Canada in 2001.
- An international study of 11 OECD countries on degrees granted in technical areas shows that, despite Canada's high educational attainment, it ranked 10th in the share of science and engineering degrees as a percentage of new degrees and ninth in science and engineering PhDs as a share of graduates.
- Despite comparing favourably to the U.S. in the number of licence options related to commercialization of R&D, Canadian universities generate only half the licence income of American institutions for similar investments.
- Canada lacks an independent body, operating at arm's length from PSE providers, that is charged with assessing the degree to which new knowledge generated by post-secondary institutions is creating economic and social benefits.

WHAT DOES THIS MEAN?

In some regions of Canada, significant R&D takes place only in post-secondary institutions (PSIs). Canada's relatively high dependence on PSIs for research and development means that policy regarding their R&D function takes on greater importance than in partner OECD countries.

Since the results of R&D have a direct impact on productivity levels and the standard of living, there is a need to examine whether Canada has the highly qualified personnel required to meet the country's economic and technological needs. In addition, there is uncertainty about Canada's ability to replace the faculty expected to retire in the near future.

Decision-makers should also be interested in gaining more insight about the barriers that Canadian researchers may face in filing patents or in licensing their knowledge. For example, do barriers have any relationship with the tendency of Canada's universities to make investments in start-up companies, which are more risky than pursuing licensing arrangements?

Canada could strengthen its R&D activities by:

- developing a set of national targets related to expenditures on R&D, and
- charging an independent body to assess the degree to which new knowledge generated by post-secondary institutions is beneficial to the economy and society.

Active, healthy citizenry

Healthy, productive and engaged citizens living in socially stable communities represent a competitive advantage in dynamic economies and societies. Similarly, internationally mobile, skilled workers choose communities that are safe and culturally vibrant, and which accommodate diversity.

There is growing evidence that educated citizens participate more actively in their communities and make greater contributions in activities such as volunteering and charitable giving. Higher levels of education also appear to increase tolerance for diversity and produce greater

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respect for local laws. As a consequence, the level of education among residents has a broad impact on a community's social success and stability.

Some evidence to support this:

- The percentage of people donating and the average amount donated both rise with levels of education: more than 90% of those holding a PSE certificate or degree donated to charities in 2004.
- Individuals with higher levels of education perceive themselves to be in better health.
- The OECD's 2006 *Society at a Glance* presents data on life satisfaction by level of education. In general, the percentage of people reporting a high level of life satisfaction increases with the level of education.

However, there is much that is not known. The current understanding of the relationships between PSE and its social outcomes rests on a relatively weak information base—data are either not available or not collected regularly enough to reflect trends.

The OECD is in the development phase of an extensive project on the social outcomes of learning, involving 13 member countries, including Canada. Once completed, this research will shed further light on the relationship between tertiary education and the social and civic outcomes of education and learning. However, at present Canada does not collect the data that the OECD will require if the project proceeds as currently envisioned.

WHAT DOES THIS MEAN?

Information and analysis on the social outcomes of post-secondary education are very limited in Canada, even though there is growing recognition of the social impacts of PSE. We do not have the information to determine the extent to which the content and experience of PSE provides the knowledge, values and competencies that lead to increased individual well-being, tolerance, and civic and social engagement.

Quality PSE

If expenditures per student constituted the sole assessment of quality, Canada would, with the U.S., be leading the field. However, excellence depends on more than the level of spending; Canadians require a clear picture of quality within the PSE sector.

Complicating the picture is the proliferation of private providers and colleges awarding degrees, which is challenging the ability of employers to assess a job candidate's credentials and suitability for employment.

Most developed countries have established national organizations with mandates for quality assurance or accreditation of post-secondary institutions. Canada is one of the few countries in the world that has not.

Further challenges related to PSE quality in Canada:

- Despite a slight decrease in the ratio of full-time students to full-time professors from 19.8 in 2003–2004 to 19.6 in 2004–2005, this figure is still higher than the ratio of 15.6 in 1993–1994. The higher ratio may erode the post-secondary experience for learners.
- The complexity of the sector is increasing, with the emergence of university colleges and private, degree-granting institutions. We have little information about these evolving institutions.
- There is a need for learner protection, to ensure that credentials earned are recognized.
- A study by the Canada Millennium Scholarship Foundation (CMSF) on retention and attrition found that 20% to 25% of first-year students do not proceed to second year. An additional 20% to 30% leave PSE in subsequent years.
- Canada has no mechanism to track what happens to students (and the public investment in their education) who abandon their PSE studies. For example, there is no comprehensive, national information about students who drop out, change courses, change institutions, or move from university to college.

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WHAT DOES THIS MEAN?

Without a quality-assurance agency for PSE and a comprehensive mechanism for tracking the learning and employment pathways of Canadians, it will continue to be difficult to measure how well the sector is delivering on the substantial investments of governments and learners.

The imperative of accountability and value for money is further intensified by the complexity and globalization of the PSE sector—teaching and learning are increasingly unhindered by borders. Such realities reinforce the importance of national quality assurance mechanisms.

Access

Conversations about PSE access most commonly revolve around affordability. However, access hinges upon many other factors, such as perceptions about the costs and benefits of PSE, and the capacity of the sector to meet the needs of traditional and non-traditional learners.

With strong attainment and participation rates, Canada is considered by many to have one of the most accessible PSE sectors in the world. This is a testament to the high priority that Canadians and their governments place on education. Despite recessions, deficit crises and the budgetary demands of the health-care system, public expenditures on PSE, as a proportion of overall social spending, remained stable during the 1990s and increased slightly afterward.

Canada's above-average attainment and participation rates also owe much to the reach and strength of the networks of community colleges.

Access has been enhanced by the steady growth and expansion of private and public PSIs, and by significant improvements to government programs that provide financial assistance to students.

Despite these strengths, obstacles remain:

- A Canada Millennium Scholarship Foundation study found that informational and motivational factors outnumbered financial considerations for individuals who chose not to pursue PSE.
- Between 1990 and 2005, the participation rate of young people in any type of schooling increased from 28% to 41%. In 2006, this rate decreased to 39.9%, one

of the few times Canada's educational participation rate decreased on a year-to-year basis. A drop in the percentage of students attending community colleges or CEGEPs over the last two years contributed to this decline.

- Canada lacks a comprehensive assessment of the sector's capacity to meet the learning demands of students.
- After being an early leader in the field of e-learning, Canada has been slower to incorporate online components into PSE programs. Canada lacks a national e-learning strategy.
- Pan-Canadian mechanisms do not exist for credit-transfer or prior learning assessment and recognition (PLAR).

WHAT DOES THIS MEAN?

Learners are perennially concerned about the capacity of the PSE sector in Canada, asking "Will there be space for me?" They will get no assurances from the fact that Canada conducts neither a countrywide assessment of student demand nor of the sector's capacity.

Barriers to access must not be viewed as solely financial. New data reveal that some qualified students are not attending PSE because of a lack of interest in and misperceptions about its benefits.

More concerted pan-Canadian action is required to enhance opportunities for lifelong learning, such as e-learning, credit transfer, and the recognition of prior and non-formal learning. Improvements to these areas could help the sector ensure efficient use of its capacity—with the number of traditional students expected to start dwindling around 2013.

Access for under-represented groups

Canada must continue to improve access for qualified students from under-represented groups, such as students from low-income families, students with disabilities, male students, immigrants, older adults and Aboriginal people.

Progress has been achieved among some under-represented groups. For example, the participation and attainment rates for Aboriginal people have risen steadily since 1986, but are still well below the rates for non-Aboriginal Canadians.

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The country's networks of community colleges appear to be an equalizer. College students are proportionally represented across all income levels, while Canada's universities have a disproportionately low number of students from lower income households.

Canada faces numerous challenges in achieving equality of access to PSE.

- The 2001 census showed that despite improvements in the high-school retention rates of Aboriginal youth, they are still much less likely to finish their high-school education than non-Aboriginal youth.
- Census 2001 also showed a significant increase in PSE participation among Aboriginal people over the past 15-year period. Nonetheless, Aboriginal attendance and participation rates are still well below Canadian averages.
- The most recent data available for rural youth show that dropout rates in Canada's small towns and rural areas are about double the rates for metropolitan areas.
- Of the 27 OECD countries for which data were collected in 2004, Canada ranked 11th in the percentage of youth who are not in education and who are without upper-secondary education.
- The percentage of 20- to 24-year-olds without high school, not in education and unemployed is higher for men than for women.
- Data demonstrate that youth from families with an annual income of more than \$75,000 are almost twice as likely to attend university as those who come from families who earn less than \$25,000.
- Enrolments both for men and women at university are at all-time highs, but female students now account for about 58% of bachelor-degree program enrolment. Males now constitute a new under-represented group. In 2004, 61% of all undergraduate degrees were earned by women.
- The proportion of immigrants holding a trade certificate declined from 9.7% in 1996 to 4.7% in 2005.

WHAT DOES THIS MEAN?

Access is an important issue for learners from under-represented groups because of the variety of barriers they face in pursuing post-secondary studies. Despite some progress, inequalities remain, such as the non-completion of high school among Aboriginal youth, the gender gap in PSE participation and graduation rates, and lower access by low-income students to universities.

Although more Aboriginal students are participating in PSE than in the past, their participation rate is still well below the Canadian average. Many Aboriginal students are still reporting financial, academic and motivational barriers.

With regard to the gender gap, Canada has exchanged one problem for another. Women, who were in the minority on Canadian campuses not long ago, now represent the majority. Males now constitute a new under-represented group. Canada needs to examine why this gender gap is widening.

Canadians, whether born in the country or new to it, must be able to use their credentials and learning experience for employment or further education. This makes prior learning assessment and recognition (PLAR) an important issue for Canada, particularly in the absence of a countrywide approach to credential recognition.

Lifelong learning

The rapidly evolving nature of employment has brought the imperatives of lifelong learning to the forefront. Today's knowledge-based economy requires working Canadians to renew and acquire skills on a continuous basis. However, the traditional PSE sector is not designed to respond to this new reality.

The OECD has reported that a lack of pan-Canadian coherence in delivering adult learning and training hampers the availability of lifelong learning opportunities. This fragmented approach means Canadians lack the information required to take up such opportunities.

In fact, this report has no new data available to update the indicators for lifelong learning.

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However, CCL published a number of reports in 2007 that shed light on the learning challenges confronting adult Canadians (including *State of Learning in Canada: No Time for Complacency* and *Unlocking Canada's Potential: The State of Workplace and Adult Learning in Canada*).

The following list provides a sense of the significance of the challenges:

- More than four in 10 working-age Canadians cannot read, write, do arithmetic or solve problems at the level required to participate fully in today's economy.
- Canada's overall rate of literacy did not improve between 1994 and 2003, and the proportion of Canadians with high levels of literacy declined slightly.
- Most learning by adults takes place on the job, yet two-thirds of Canadians do not take part in any formal work-related learning activities.
- Barriers that prevent Canadian workers from participating in learning and training include a lack of resources devoted to training by businesses, labour and government, as well as individual attitudes.
- 1.5 million Canadians report having unmet learning and training needs.
- Canadian firms invest less in workplace training than those in most industrialized countries.

WHAT DOES THIS MEAN?

The PSE sector in Canada must respond better to the growing requirement for ongoing learning.

In order to meet the demand for lifelong learning among working-age Canadians, post-secondary institutions will need to:

- take on a greater role in delivering adult education,
- improve links to employment opportunities, and
- explore ways to work with small and medium-size enterprises to provide adult learning.

Training must be made more readily available for those in most need (particularly unemployed adults with low literacy levels and recent immigrants).

Other countries have been more successful than Canada in encouraging employer-supported training and lifelong learning. Canada must act quickly or risk falling further behind.

Affordable and sustainable PSE

Overall, Canada's investments in post-secondary are above the OECD average. Public expenditures on PSE accounted for 6.5% of overall social spending in Canada in 2006, roughly 1% higher than a decade earlier. As stated earlier, this continued support shows how strongly Canadians value PSE.

But governments are not the only investors in PSE.

- Tuition fees, which are not learners' only costs associated with PSE, have increased at nearly four times the rate of inflation (as measured by the Consumer Price Index) from 1990–1991 to 2004–2005.
- The percentage of students requiring financial assistance has increased. The number of graduates who borrowed rose significantly, from 45% in 1995 to 56% in 2000 and 59% in 2006.
- Between 2003 and 2006, the percentage of college students who accumulated more than \$15,000 in debt increased from 17% to 29%.
- Learners' investments in post-secondary education are increasing more rapidly than the public rate of investment, indicating a shift in the financial burden toward the individual.

WHAT DOES THIS MEAN?

Although the cost of post-secondary education can be viewed as an investment in career and life opportunities, there is concern that high levels of debt may inhibit access to and persistence in PSE.

The rising costs and debt loads for learners in Canada reinforce the already negative perception that many qualified students, especially from low-income households, have about the affordability of PSE.

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PART II: Measuring What Canadians Value: A Pan-Canadian Data Strategy

In preparing the 2006 report, *Canadian Post-secondary Education: A Positive Record – An Uncertain Future*, CCL was constantly challenged by a lack of information. In many cases appropriate data were simply not available. When they were available, they were often not comparable, compiled or adequate.

These informational shortcomings hinder the ability to report on the state of PSE in Canada.

This year's report, *Strategies for Success*, proposes an approach for gathering and utilizing the information required for the PSE sector in Canada. Only with a solid base of information will we know whether the billions of dollars invested are being used most effectively.

In the absence of a strategy for data collection, the present condition—where nationwide, coherent, coordinated and comparable data are unobtainable—will continue to prevail. Canada's capacity to assess and improve its PSE sector will continue to be compromised, as will its ability to compare performance with other countries.

Part II of *Strategies for Success*, entitled "Measuring What Canadians Value: A Pan-Canadian Data Strategy," proposes a path for filling the country's PSE information gaps. It discusses in detail the types of information required to assess performance in eight identified goals for PSE. In addition, *Strategies for Success* outlines why, without a champion and a process to engage the various stakeholders, little progress on the data front should be expected.

Although CCL recognizes that significant discussions are required to develop a process for the implementation of the strategy, the issues are too important to await unanimity. Given that governments already possess many of the necessary levers to create and sustain a data strategy, CCL suggests that every effort be made now to address the three most pressing information issues.

They are:

- ongoing and adequate funding for the essential data instruments (see text box);
- comprehensive data on specific and salient issues in each of the eight goals identified by CCL for the PSE sector in Canada; and
- immediate implementation of a unique student identifier, and collection and reporting of faculty numbers for colleges, of data on adult education and of data on private providers.

ESSENTIAL DATA INSTRUMENTS

The following surveys, administered by Statistics Canada, need stable and appropriate funding to provide regular, timely and relevant data that measure the strengths and weaknesses of the PSE sector in Canada:

- Access and Support to Education and Training Survey (ASETS)
- Longitudinal Survey of Immigrants to Canada (LSIC)
- National Apprenticeship Survey (NAS)
- National Graduate Survey (NGS)
- Program for International Assessment of Adult Competencies (PIAAC)
- Post-secondary Student Information System (PSIS)
- Registered Apprenticeship Information System (RAIS)
- Survey of Earned Doctorates (SED)
- University and College Academic Staff Survey (UCASS)
- Workplace Employee Survey (WES)
- Youth in Transition Survey (YITS)

Consideration of a broader strategy should proceed while at the same time addressing these immediate and achievable goals.

Next Steps

In order to make progress toward a coherent base of PSE data, CCL has identified six issues that should be addressed.

1. Effective coordination of the pan-Canadian data strategy

Greater coordination and coherence among the various intervenors are required to ensure that priorities are set within the overarching data strategy, that priority activities are identified and funded and that results are delivered.

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Within the federal government, Human Resources and Social Development Canada (HRSDC) has the broadest responsibility for learners, the PSE sector and labour-force issues. In addition, Industry Canada, with its responsibility for the innovation portfolio and coordination of the federal granting councils, will be an increasingly important partner in this venture.

2. Public reporting

Achievement of an effective pan-Canadian PSE data strategy requires regular public reporting and the active involvement of stakeholders.

The adequacy of the PSE information base should be kept in the public eye through regular public reports—a public form of external audit and evaluation. Stakeholders need to be involved to ensure that the PSE database reflects the public interest.

3. Collective commitment to ensuring a return on increased investment in PSE

In its 2007 budget, the federal government proposed an increase in the Canada Social Transfer (CST) of \$800 million per year, stating, “This increase will take effect in 2008–09, allowing discussions with provinces and territories on how best to make use of this new investment and ensure appropriate reporting and accountability to Canadians.”

For that reporting and accountability commitment to become a reality, the development and pursuit of a pan-Canadian PSE data strategy should be a central focus of those discussions among the federal, provincial and territorial governments.

4. Creating an ongoing pan-Canadian forum

The development and effective implementation of a pan-Canadian data strategy for PSE is a complex process and requires the active engagement of stakeholders—people and organizations with a professional, personal or financial stake in the PSE sector.

There is a need for an annual pan-Canadian forum for stakeholders to discuss the priorities of the PSE data strategy and system. This forum should include governments, educators, learners and employers. It should also involve the statistical experts and researchers who provide impor-

tant insight into educational and contextual data—many of whom are already engaged in accountability and reporting activities.

Substantive engagement of stakeholders requires the opportunity to give serious consideration to complex material before it is considered at the pan-Canadian forum. In addition to public consultation on discussion documents and reports, a series of regional, thematic workshops (on issues such as adult and workplace learning) should be held to help achieve a consensus prior to the annual pan-Canadian forum.

5. Early action on priority issues

The process of engaging stakeholders and convening the necessary federal–provincial–territorial discussions is pivotal to ensuring a robust pan-Canadian data strategy. However, without immediate action on a number of the identified gaps, both in the information and the ‘info-structure’ required for an effective data strategy, Canada will continue to lag behind other nations in its capacity to assess and report on the performance and condition of its PSE sector.

In order not to lose current momentum—generated by the Canadian Council on Learning’s 2006 PSE report, the related provincial activities (e.g., B.C.’s *Campus 2020* report) and the federal government’s commitment to greater accountability—immediate action is advisable on a number of initiatives. Three data issues are seen as particularly urgent:

- The implementation of a **unique student identifier** that stays with the learner throughout his or her life. This will provide richer information about learners as they move from secondary school to PSE, between PSE institutions and the workplace, among PSE providers and across regions of Canada. Such an initiative is urgent and should be implemented by June 2009.
- A concerted and formalized approach to the introduction of a common dataset, including a data dictionary that is applied across the PSE sector and is compatible with international standards. This will require a mechanism for developing, maintaining and promoting **standardized specifications** for PSE activities and data elements, to enable reliable and comparable data collection and exchange among stakeholders. Such a mechanism could take the form of a formal assignment to the Canadian Education Statistics Council (CESC). Ideally, this would also be implemented by June 2009.

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- The development of an information base on **adult learning** (including data from private providers). The lack of data on this aspect of the PSE sector is unacceptable. HRSDC could play a leadership role and the Canadian Council on Learning's two related knowledge centres (the Work and Learning Knowledge Centre, and the Adult Learning Knowledge Centre) could bring together many of the partners, providing a useful sounding board for the indicators that would supply evidence about the condition and performance of adult learning in Canada.

6. Resources to make it happen

There are inefficiencies in the current situation that can be addressed, in part, through improved coordination and common standards. However, this will not address the overall need for more effective measurement of the condition and performance of the PSE sector. A discussion concerning the resources required for the implementation of a pan-Canadian data strategy, and how these costs should be shared, is a vital next step.

Who benefits?

The beneficiaries of a successful PSE data strategy would be:

- **Learners and their families**—who seek information on graduation rates, average costs and length of time to complete a particular field of study; who want assurance that their credentials will provide them with the knowledge, skills and abilities needed in the labour market and as citizens
- **Taxpayers**—who want accountability on the performance of the sector as a whole and assurance on the alignment of public expenditures with public benefits
- **Boards of Governors and institutional managers**—who require information on institutional performance, competitiveness and operational efficiency, usually in a comparative context
- **Employers**—who want assurance about the quality of PSE credentials and to know better what types of skills they can expect from PSE graduates in the years to come
- **Governments**—which need information on international and domestic comparability of performance, including learning outcomes, the social and economic return on their investments, and insights on how to refine policies and programs for better efficiency and effectiveness
- **Researchers**—who inform policy and practice by investigating the relationships between educational practices and their various social, economic and learning outcomes

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PART III: From Data to Benchmarks

Part II outlines the need for, and characteristics of, a pan-Canadian data strategy for PSE. As indicated in this strategy, the word data can have different meanings and serve different functions. These functions range from baseline information about the sector's characteristics to robust and telling indicators that allow for assessment of performance and progress over time, or in comparison to other jurisdictions. Finally, data can be used to set numerical targets to which jurisdictions attach priority for future attention.

Part III moves beyond the data strategy to explore the question of benchmarking. This requires close attention to the linkages between PSE and the wider social and economic goals being pursued in Canada.

In today's competitive, global economy, and in the current policy environment, which emphasizes accountability in publicly funded sectors of society, the move to measure outcomes has become fairly standard. Much effort has been devoted to designing, assembling and assessing data and indicators that shed light on who undertakes PSE, what they gain from it and, increasingly, how those benefits affect life after tertiary education.

Many other jurisdictions have established benchmarks. While the idea of benchmarks has been interpreted differently in different countries, they are generally understood to refer to system averages. The methodologies, terminology and results of these exercises vary in their focus and intensity. There is considerable internal debate within governments and institutions regarding the appropriate balance when determining what to report on and with what degree of analysis and interpretation.

Part III of the report provides a brief overview of the initiatives to monitor and report on PSE in several other countries and jurisdictions. The intent is to identify some of the approaches, models and indicators that Canada could examine to determine the potential applicability or usefulness of such practices to the Canadian situation. This section supplements the conclusions reached in Part II and proposes that seven key areas serve as a foundation for discussing the development of a focussed set of benchmarks and, potentially, targets, for Canada.

The seven areas that CCL has identified are:

- literacy levels
- math, science and technology graduates—undergraduate and graduate
- R&D personnel per 1,000 population
- graduation rates
- PSE attainment rates for population
- high-school completion rates
- adult participation in lifelong learning

These seven areas are offered as a starting point for consideration by researchers and policy and program experts across the country.

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PART IV: Toward a Pan-Canadian Framework for PSE

Strategies for Success opens with the assertion that many of Canada’s hopes for future prosperity are pinned on education, especially post-secondary education (PSE) in its broadest sense—which includes not only public universities and community colleges, but also private institutes, apprenticeships, workplace training and even the informal learning many adults engage in throughout their lives.

Recognizing the important social and economic contributions of PSE, many countries—even countries with federal systems of government—have developed coherent and cohesive information systems and strategies for tertiary education, to guide their planning and policy-making processes.

Canada has taken no such steps.

Despite the undoubted past achievements of the PSE sector in Canada and the many fine qualities of our post-secondary institutions and educators, without a more coordinated approach Canada is not only failing to maximize the effectiveness and efficiency of its PSE sector, but also risks falling behind countries that have national frameworks.

The situation in other jurisdictions

The contrast between Canadian incoherence and the national outlook of other OECD countries is captured in the following table.

International overview of PSE processes and system-wide structures

	MAJOR REVIEW IN LAST 5 YEARS	SYSTEM-WIDE GOALS AND OBJECTIVES	FUNDING ALIGNED WITH NATIONAL PRIORITIES	QUALITY ASSURANCE AGENCY(IES) IN PLACE	ONGOING MECHANISM FOR FEDERAL/STATE PLANNING	FEDERAL MINISTRY OF EDUCATION
AUSTRALIA	Yes	Yes	Yes	Yes	Yes	Yes
EU	Yes	Yes	N/A	Under development		
GERMANY	Yes	Yes	Yes	Process under development	Yes	Yes
U.S.	Yes	Under review	Limited federal money targeted	Yes	No	Yes
SWITZERLAND	Yes	Yes	*	Yes	Yes	Federal Office of Education
U.K.	Yes	Yes	Yes	Yes	N/A	N/A
N.Z.	Yes	Yes	Yes	Yes	N/A	N/A
CANADA	No	No	No	No	No The provinces and territories meet as the Council of Ministers of Education, Canada and the federal/provincial/territorial Forum of Labour Market Ministers meet regularly to share information	No Federal Human Resources Ministry funds labour market programs, research, literacy and other initiatives related to PSE

*Available material not detailed enough to make conclusions at this time.

As this chart demonstrates, many federal systems have established explicit, transparent processes to enunciate specific nationwide goals and objectives, while recognizing the complexity of PSE and the individual roles of the various components within those systems. Almost all of the comparator countries have increased their focus on accountability issues and the need to provide an evidence-based analysis of performance, quality, progress and outcomes of their PSE sectors. In fact, most jurisdictions have put in place quality assurance bodies or agen-

cies to design standards for quality and conduct ongoing, independent performance audits.

Setting and monitoring national goals and objectives involves the development of measures and indicators, as well as regular reporting on performance and progress toward achievement of the national goals. Accountability and benchmarking are not limited to PSE institutions, but encompass an overall assessment of a country’s PSE sector, in its entirety, in meeting national targets.

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The situation in Canada

Part I of *Strategies for Success* identified a number of ways in which the effectiveness of Canada's PSE sector is undermined by a lack of coordination and cohesion:

- Unlike most developed countries, Canada lacks a national agency of quality assurance in the PSE sector.
- The current linkages between post-secondary institutions and the labour market are insufficient, contributing to mismatches between demand and supply in the labour force.
- Only 13% of trades have nationally recognized certification, causing barriers to workers' mobility across the country.
- There is no clear or comprehensive depiction of the composition of the PSE sector in Canada, despite the emergence of new hybrid degree-granting institutions and the proliferation of private PSIs.
- Canada relies heavily on the R&D functions of its PSIs, but lacks a pan-Canadian mechanism to optimize the relationship between PSIs and the potential users of the knowledge they generate.
- Canada does not have a collective mechanism to assess PSE requirements against demographic projections, such as the level of student demand versus PSI capacity across the country.
- The field of lifelong learning remains a chief weakness in Canada. There are no pan-Canadian mechanisms to improve the sector's response to the needs of non-traditional learners and adult workers; for example, there are no pan-Canadian mechanisms for e-learning, credit transfer and prior learning assessment and recognition, among others.

What, then, is the way forward for Canada? How can we better align our structure with ambitions for PSE in our society?

Clearly, given the growing need for skilled workers and knowledge workers, PSE is more important than ever before. Most developed countries have implemented national strategies and national quality programs to ensure their PSE sectors respond to the demographic, economic and social imperatives of the 21st century. Unless Canada takes similar steps, it risks falling behind. Part IV of *Strategies for Success* is intended to spark a discussion on what should be included in a national framework and identifies who should be involved in that discussion. We

also provide examples of three areas where a national framework is most urgently needed: quality assurance and accreditation; credit transfer; and prior learning assessment and recognition.

It all started in 2006

The 2006 report prepared by the *Canadian Council on Learning*, entitled *Canadian Post-secondary Education: A Positive Record – An Uncertain Future*, examined the current strategic plans of provincial and territorial ministries of higher education and training, finding convergence toward some common goals for PSE flowing logically from all these plans. The report identified eight key goals, analysed current data with respect to those goals at the national level, and concluded that the absence of a national PSE focus, agenda or strategy potentially jeopardizes Canada's future prosperity.

The case for a pan-Canadian approach must be made in some detail and with some care. Certainly, some who support the notion that PSE is important to our future may question the conclusion that we require a national strategic approach. There is need for a dialogue as to why, how and who should and could actively advance a common, countrywide approach to post-secondary issues—in addition to the province-focussed approach that will naturally continue as a result of the way PSE is structured in this country.

With regard to process, the provincial focus has meant that Canada has never had a formal, structured, federal-provincial-territorial mechanism or forum for discussion of common or mutually interacting issues, goals and priorities. However, it should be noted that a number of cross-jurisdictional bodies and mechanisms have evolved, designed to bring together actors involved in several aspects of post-secondary education.

The question is whether the whole—represented by the combined efforts of the individual jurisdictions, plus the results of the various cross-jurisdictional mechanisms—provides an adequate response to the challenges confronting Canada in a highly aggressive global marketplace and quickly changing world. Or is the status quo less than the sum of its parts, in light of the growing expectations and pressures that now face Canadian PSE? Those who argue that a more coherent, cohesive and comprehensive approach is required would take the latter position.

EXECUTIVE SUMMARY

Another key question is whether Canada's future success can be ensured through the independent actions of individual jurisdictions, or whether there are some challenges that can be effectively addressed only by supplementing province-specific initiatives with pan-Canadian initiatives.

Part IV frames the discussion about a pan-Canadian approach by setting out three related, but distinct, issues:

- why a pan-Canadian framework is needed and useful
- what might constitute the components or characteristics of a pan-Canadian framework

CONCLUSION

CCL's first annual report on PSE examined the sector from a countrywide perspective, something previously not attempted in Canada. It was necessarily descriptive, depicting current reality based on statistics and indicators gathered both domestically and internationally. The report concluded that—despite the multiple strengths that PSE educators and institutions have demonstrated over many years—the absence of explicit and clearly articulated pan-Canadian goals, measures to assess achievement of those goals and greater cohesion among the many facets of PSE, leaves Canada's future uncertain.

This second annual report on PSE describes the conditions required to move from challenges to solutions and proposes strategies for success. The two most significant conditions are captured in the parts relating to a PSE data strategy and working "Toward a Pan-Canadian Framework for PSE." The terms may appear subdued and technical, but their meanings are profound. Without a full set of relevant, pan-Canadian information, it will not be possible to build a PSE sector that is successful over the long term—despite the fact that all levels of government, individual Canadians and post-secondary institutions fully understand the imperative of excellence in tertiary education. All of these groups need reliable information and analysis in order to make enlightened decisions. The second condition involves taking the practical and measured steps required to establish a pan-Canadian approach to PSE. Canada's future depends on it.

- how—and by whom—those components or characteristics could be defined and implemented

This final section also sheds light on activities underway in several international jurisdictions, illustrating with concrete examples what can be done to advance post-secondary education—lessons Canada may be well-advised to heed in order not to slip further behind.

"Toward a Pan-Canadian Framework for PSE" concludes by examining some of the partners and mechanisms that could be involved in a national framework.

Almost all other developed countries have built the national information systems required to optimize policy and have provided themselves with the necessary tools and mechanisms to adjust, to act and to succeed. Canada has not, but must.

The time has come for all partners in PSE to work collectively toward building coherent strategies, goals and information structures that will enable Canada's PSE sector and its learners to realize their full potential.

Strategies for Success makes it difficult to cast our collective gaze downward—away from the national PSE initiatives of other countries—and simply hope that our good, but fragmented, intentions will see us through. We need to chart our course, together, with solid evidence in hand.

It is easier to lead if you can clearly see the landscape, know where you stand and know where you are headed.

FUTURE DIRECTIONS

Post-secondary Education in Canada: Strategies for Success is the second annual report on PSE published by the Canadian Council on Learning. Subsequent reports will update key data and analysis on participation, attainment, access, quality, results and benefits to build a baseline of information and track changes over time. CCL's third report, to be released in autumn 2008, will explore in greater detail key PSE priorities to enrich further the national dialogue on strategies for success.

About Part I

Part I of this report updates the data and indicators presented in CCL's 2006 report, *Canadian Post-secondary Education: A Positive Record – An Uncertain Future*. That report identified a framework of eight goals and objectives derived from strategic plans for PSE developed by the provinces and territories. Organized by those eight goals and objectives, Part I of *Strategies for Success* provides new information available since the 2006 report, clarifies and simplifies indicators with a view to providing better focus for the discussion of relationships between PSE and social and economic goals, and extends the scope of the international and time-series data available. This approach provides a broader context for examining pan-Canadian PSE.

The chapters contained in Part I conclude with observations about the extent to which objectives are being met within each specific goal—and whether current performance is adequate to satisfy Canada's existing or future social and economic needs. In each chapter, these observations are grouped under the headings: Factors for Success, and Positive Developments and Troubling Trends.

This year's analysis benefits from the input and advice of many people—statisticians, policy experts, and those working in specialized areas such as research and

development. Their input helped to refine and update CCL's work to ensure that it is meaningful and relevant.

This second report on PSE in Canada tends to focus less on descriptive and snapshot statistics, instead emphasizing wherever possible data that offer a perspective over time. In some cases, data have been converted to indices to make it easier to measure real changes year over year, with employment and population growth taken into account. These indicators will be updated annually where possible.

CCL's objective in conducting this work is to encourage and facilitate a pan-Canadian dialogue on the role of PSE in Canadian society and on methods to measure its pan-Canadian results. Part I of this report is intended as a useful resource to help Canadians, governments, individuals and organizations directly involved in post-secondary education consider critical issues surrounding the future direction of PSE in this country. In today's world of new competitors and challenges, the right choices must be made to ensure that Canada excels in the 21st century.

Data presented in *Strategies for Success* are the most recent available, as of Aug. 31, 2007.

Chapter 1 Skilled and Adaptable Workforce

1.1 OVERVIEW

While the pursuit of knowledge is a worthy goal, employability is the primary motivation for many people undertaking post-secondary studies. A highly educated population is also a matter of great national interest. As the majority of occupations today require higher skill levels, the ability to meet labour-market demands is critical to a country's competitiveness and economic performance. Knowledge is now the currency of the global economy, making a skilled and adaptable workforce a vital component of a productive and prosperous country.

There is a growing number of positions going unfilled for lack of qualified candidates with PSE. Employers are reporting labour and skills shortages in numerous fields, including engineering, health professions, high technology and many of the highly skilled trades. In this context, post-secondary education institutions clearly play a vital role in addressing such gaps.

Post-secondary institutions (PSIs) in Canada have actively fostered connections with the business community to create a better match between labour-market supply and demand. The community-college system, in particular, has grounded its curriculum in strong linkages with local and regional economies and direct partnerships with industry. These linkages include internship programs and work placements, business and labour representatives sitting on boards and committees, and community input in curriculum development. Many institutions also conduct surveys to determine both business needs and graduate placement follow-up.

The Canadian Council on Learning's 2006 report on PSE concluded that, despite these efforts, the already sizeable gap between PSE graduates and labour-market demand is likely to widen as aging baby boomers retire. It highlighted the important contributions that groups currently under-represented in the labour force could make to help alleviate these shortages and the role PSIs must play to increase Canadians' skills and education levels. The report called for more comprehensive information on labour-market demand and supply dynamics. It also noted that greater attention must be paid to the sector's capacity to meet this growing demand.

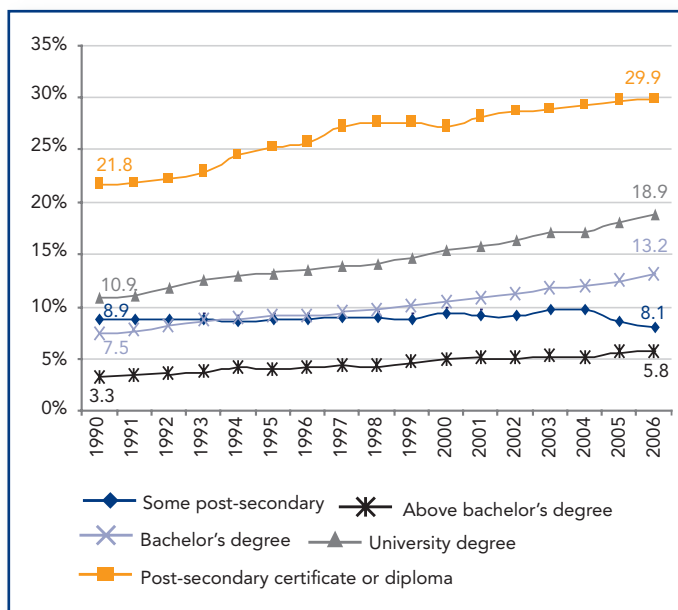
Six indicators have been selected to illustrate the contribution of PSE to the labour market. An overview of each is presented below.

1.2 POST-SECONDARY EDUCATIONAL ATTAINMENT

Post-secondary educational attainment in Canada has increased at a steady rate over the last few decades. Since 1990, the percentage of the population holding a bachelor's degree has nearly doubled, while the percentage of those with a post-secondary certificate or diploma has risen from just over 22% in 1990 to about 30% in 2006.

Over the last two years, the percentage of the population that has attained PSE above the bachelor level has risen somewhat, after remaining fairly stable throughout the early part of the decade. The percentage of those with only some post-secondary education has declined marginally over the last two years. Given the rising levels of educational attainment overall, this may indicate that more people are completing their studies.

Figure 1.2.1 **Distribution of the population, 15 and over, by level of post-secondary education, Canada, 1990–2006**



Source: Statistics Canada, *Labour Force Survey*, 2006

Until quite recently, Canada was the acknowledged leader among OECD nations in improving PSE attainment levels among 25- to 64-year-olds, with a 17 percentage-point increase. Canada's growth was rivalled only by Denmark (14 percentage-point increase) and the U.K. (13 percentage points). Comparable growth in the U.S. for the same period

was nearly half that of Canada, at nine percentage points. The picture changed somewhat in the first five years of the 21st century. Denmark has emerged as the country (from the group in Table 1.2.1) with the highest increase in the population that has attained tertiary education. Canada's increase equals that of Japan and is followed closely by Australia.

This shift in growth reflects the fact that many countries, having recently invested heavily in education, are now seeing the resulting growth in enrolments and PSE attainment. To put this into perspective, 30 years ago, North America accounted for more than one-third of post-secondary students worldwide; today, Canadian and American students make up only one-sixth of global enrolments.¹ Rates of growth in PSE attainment are now higher in other countries as they work to meet the needs of knowledge-intensive industries and catch up with the performance of world leaders in education.

Table 1.2.1 **Percentage of the 25- to 64-year-old population that has attained tertiary education, selected OECD countries, 1991–2004**

	1991	1995	1998	1999	2000	2001	2002	2003	2004	PERCENTAGE-POINT CHANGE
Australia	22	24	25	27	27	29	31	31	31	9
Canada	28	34	38	39	40	42	43	44	45	17
Denmark	18	20	25	27	26	26	27	31	32	14
France	15	19	21	21	22	23	24	23	24	11
Germany	22	23	23	23	23	23	23	24	25	3
Japan	m	m	30	32	33	34	36	37	38	m
U.K.	16	22	24	25	26	26	27	28	29	13
U.S.	30	33	35	36	36	37	38	38	39	9

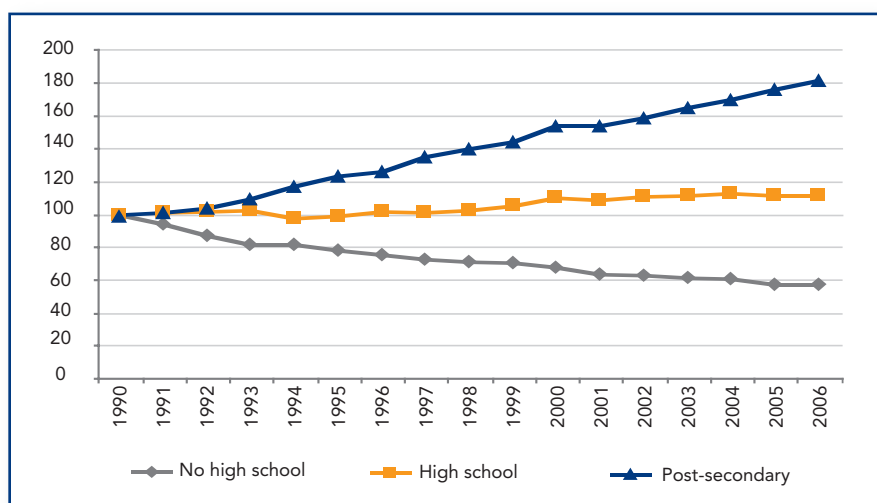
m = Missing data

Source: OECD, *Education at a Glance*, various years

1.3 EMPLOYMENT GROWTH AND PSE ATTAINMENT

Research reveals that employment growth is strongly correlated with levels of education. The graph below shows that employment growth, for the population with a PSE credential, has increased much more rapidly than for those with only high school. For those who have not completed high school, employment opportunities are declining.

Figure 1.3.1 **Employment growth by level of education, Canada 1990–2006 (1990=100)**

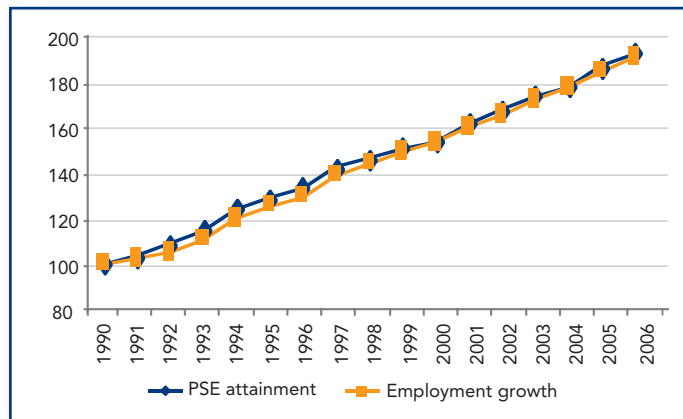


Source: Statistics Canada, *Labour Force Survey*, 2006

PART I REPORTING PERFORMANCE AND PROGRESS OF PSE IN CANADA

Since 1990, the growth in PSE attainment in Canada has very closely tracked employment growth.

Figure 1.3.2 **Employment growth and PSE attainment growth, Canada, 1990–2006 (1990=100)**



Source: Statistics Canada, Labour Force Survey, 2006

1.4 LABOUR-MARKET SUPPLY AND DEMAND

For many years, economists have struggled with how to measure the balance between the demand for labour and the availability of workers. The problem is compounded if attempts are made to forecast labour-market conditions, an exercise fraught with methodological problems. This is particularly true in a country the size of Canada, where there are many regional or area-specific labour markets.

Human Resources and Social Development Canada (HRSDC) released a 10-year outlook for the Canadian labour market for 2006–2015², which presents a detailed assessment of current and forecast labour-market conditions for Canada. It concludes that the Canadian labour market has been performing well over the last several years with strong growth rates in both employment and participation and with relatively low unemployment rates.

Forecasts for employment growth are based on job openings, which is a combination of new job creation and retirements as the population ages. HRSDC estimates that, between 2006 and 2015, two-thirds of job openings resulting from these two factors will be in management or occupations usually requiring PSE. This compares to 63% over the previous 10 years.³

Table 1.4.1 **Job openings by skill level, 2006–2016**

	EXPANSION DEMAND (NON-STUDENT)		RETIREMENTS		SHARE
	Level (000s)	Rate (AAGR ¹)	Level (000s)	Rate (AAR ²)	
Total skill level ³	1,697	1.1%	3,801	2.4%	100.0%
Management	170	1.2%	433	2.8%	11.0%
Occupations usually requiring:					
– University education	445	1.6%	726	2.5%	21.3%
– College education or apprenticeship training	560	1.1%	1,288	2.4%	33.6%
– High school diploma	425	0.9%	1,035	2.2%	26.5%
– Only on-the-job training	97	0.6%	320	2.1%	7.6%

1. AAGR: average annual growth rate.

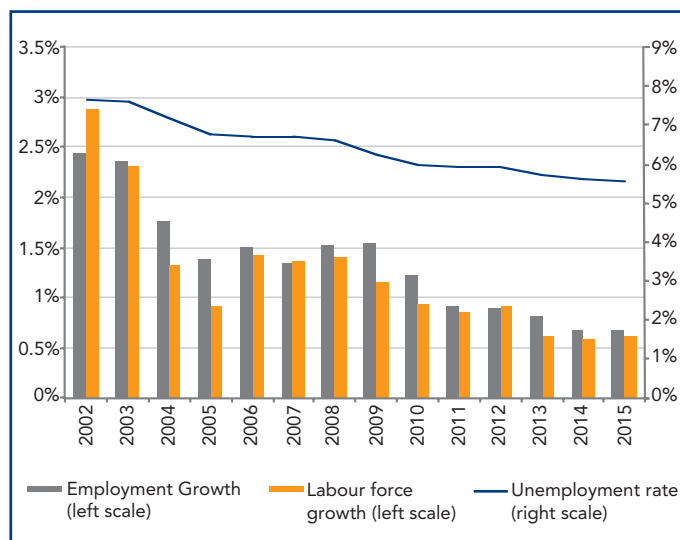
2. AAR: annual average retirement rates, which correspond to the ratio of retirement level to employment for each forecast year.

3. Skill levels are based on the 2001 NOC Matrix, in which occupations are grouped according to the education and training normally required.

Source: Lapointe, M., et al, *Looking ahead: A 10-year outlook for the Canadian labour market (2006–2015)*, 2006, p. 56

HRSDC anticipates that labour-market growth, although expected to grow at a slower rate over the next 10 years, will remain “buoyant.”⁴

Figure 1.4.1 **Aggregate labour-market outlook, 2002–2015**

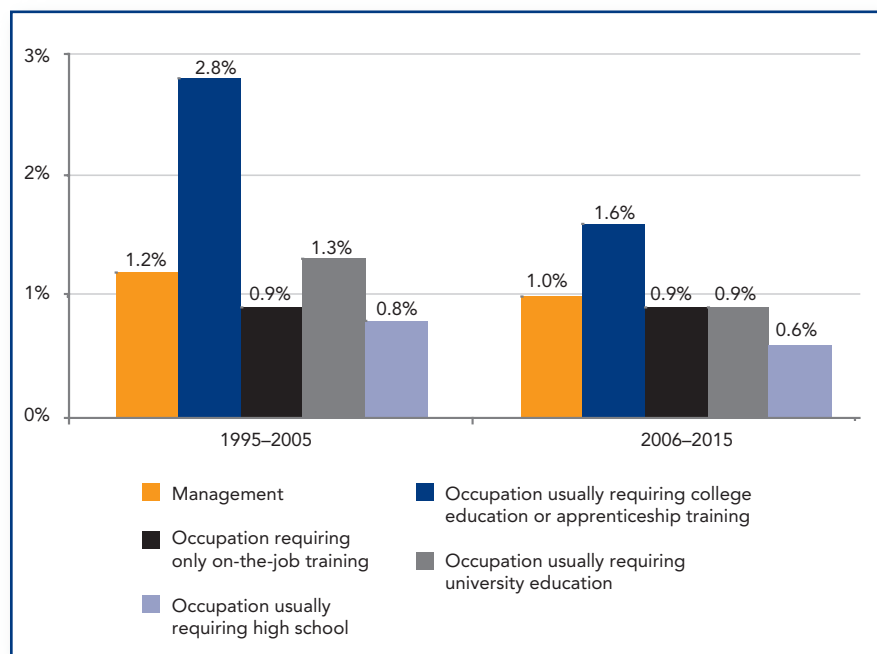


Source: Lapointe, M., et al, *Looking ahead: A 10-year outlook for the Canadian labour market (2006–2015)*, 2006

The highest growth rate is expected to be in occupations that require a post-secondary certification, while growth in occupations requiring only on-the-job training is expected to be much lower.

SKILLED AND ADAPTABLE WORKFORCE

Figure 1.4.2 Labour-force growth by skill level, 1990–2015¹



¹ Average annual compound-growth rates

Source: Lapointe, M., et al. *Looking ahead: A 10-year outlook for the Canadian labour market (2006–2015)*. 2006, p. 56

Although HRSDC forecasts a balanced labour market at the aggregate level, the nature of employment and the realities of the Canadian labour market are such that there will likely be regional or local labour markets with either excess supply or demand. HRSDC is projecting a series of occupations—such as business, finance and administration, natural and applied sciences, health, and primary and processing industries—where shortages are expected over the next 10 years.⁵

The majority of the occupations that are forecast to experience excess demand are those requiring post-secondary education. As a consequence, the linkages between the educational institutions and the labour market will be even more critical in the future than in the past. As declining birth rates in Canada result in slower growth of the entry-level labour force, the participation of immigrants and those traditionally under-represented in the labour market (Aboriginal people, visible minority groups and those with disabilities) will become increasingly important in meeting the demand for skilled labour. These issues are explored in greater detail in later chapters.

The ability of PSIs to respond to changing labour-market realities and the needs of non-traditional learners will be a key determinant of Canada's ability to achieve economic growth and maintain its international competitiveness.

1.5 UNEMPLOYMENT RATES BY EDUCATION LEVEL

Unemployment rates, as rudimentary a measure as they are, have long served as an indicator of the balance between the supply of and demand for labour. Unemployment rates in the range of 3% to 5% usually signal some tightness or excess demand in the labour market. Some economists have measured help-wanted indices in newspapers to estimate magnitudes of labour shortages. Needless to say, this approach is not without many technical and methodological problems.

Higher levels of educational attainment are strongly associated with lower rates of unemployment. Even during periods of relatively high unemployment for all education levels, such as in the early 1990s, people with higher levels of education had lower unemployment rates.

Table 1.5.1 tracks unemployment rates by level of education in Canada between 1990 and 2006. Over time, unemployment rates for those with a university degree are significantly lower than for those with lesser educational qualifications. Over the last 15 years, unemployment rates for those with less than a high-school education have tended to be three times as high as unemployment rates for those with a university degree. Since 2000, the unemployment rate for high-school graduates has been about half of that for people with less than high school.

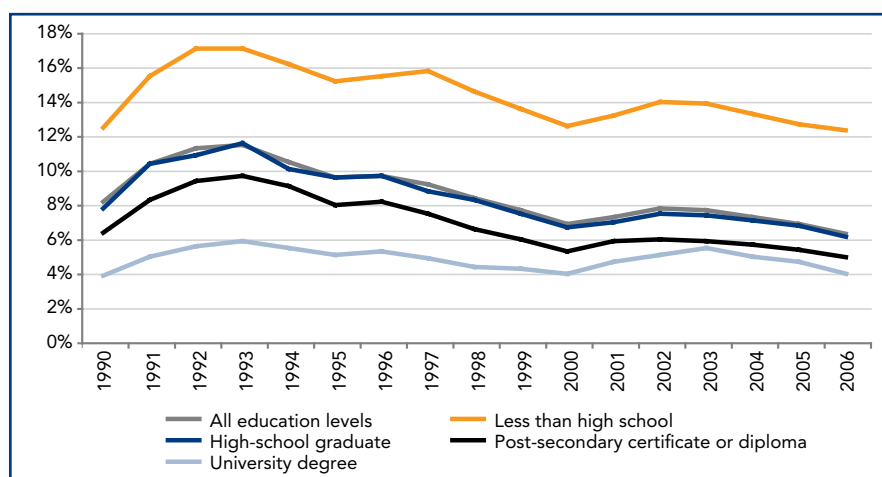
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Table 1.5.1 Unemployment rates for 15-year-olds and over, Canada, 1990–2006

YEAR	ALL EDUCATION LEVELS	LESS THAN HIGH SCHOOL	HIGH-SCHOOL GRADUATE	POST-SECONDARY CERTIFICATE OR DIPLOMA	UNIVERSITY DEGREE
1990	8.1%	12.4%	7.7%	6.3%	3.8%
1991	10.3%	15.4%	10.3%	8.2%	4.9%
1992	11.2%	17.0%	10.8%	9.3%	5.5%
1993	11.4%	17.0%	11.5%	9.6%	5.8%
1994	10.4%	16.1%	10.0%	9.0%	5.4%
1995	9.5%	15.1%	9.5%	7.9%	5.0%
1996	9.6%	15.4%	9.6%	8.1%	5.2%
1997	9.1%	15.7%	8.7%	7.4%	4.8%
1998	8.3%	14.5%	8.2%	6.5%	4.3%
1999	7.6%	13.5%	7.4%	5.9%	4.2%
2000	6.8%	12.5%	6.6%	5.2%	3.9%
2001	7.2%	13.1%	6.9%	5.8%	4.6%
2002	7.7%	13.9%	7.4%	5.9%	5.0%
2003	7.6%	13.8%	7.3%	5.8%	5.4%
2004	7.2%	13.2%	7.0%	5.6%	4.9%
2005	6.8%	12.6%	6.7%	5.3%	4.6%
2006	6.3%	12.3%	6.2%	5.1%	4.0%

Source: Statistics Canada, Labour Force Survey, 2006

Figure 1.5.1 Unemployment rates for 15- to 64-year-olds, Canada, 1990–2006



Source: Statistics Canada, Labour Force Survey, 2006

These relationships changed slightly in 2006 because of buoyant economic conditions. Unemployment rates for all levels of education declined in 2006 and are the lowest they have been since the early 1990s. For those with less than high school, the unemployment rate dropped below 10% in 2006 for the first time in decades. This is likely indicative of strong economic times and the ability of people to obtain jobs in certain regions of the country, where highly skilled labour is in short supply as the result of strong economic growth. It may also reflect that, while most occupations demand higher education levels, jobs in some primary industries—such as western Canada's oil patch—do not always require advanced skill levels. Young males often

forego post-secondary studies to pursue well-paying jobs in regions and sectors that are booming. Of course, the data in Figure 1.5.1 are annual averages and do not reflect seasonal unemployment patterns.

1.6 APPRENTICESHIP REGISTRATIONS AND COMPLETIONS

In Canada, there are approximately 370 trades, including scores of apprenticeship trades. Of those, 49 trades have the Red Seal designation, which entitles a qualified person to practice that trade in any province after the completion of training and an examination.

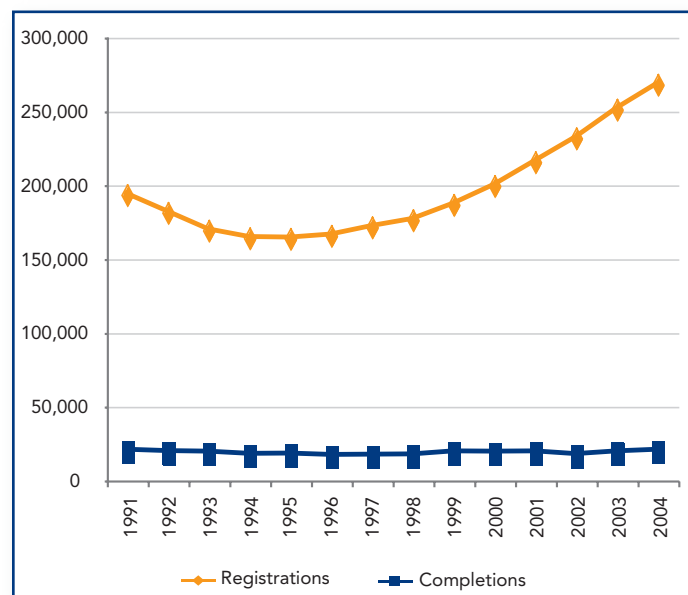
Labour-market conditions for the apprenticeable trades are always closely monitored, since shortages in many of the key trades can have a detrimental impact on economic expansion and industrial development. This has been the case in large industrial projects, such as the expansion of the oil sands plants in northern Alberta or large hydroelectric projects in central Canada. Sufficient numbers of appropriately trained journeymen and an adequate number of apprentices are viewed as critical to a well-functioning labour market.

Statistics show that, throughout most of the 1990s, growth in registrations and completions of apprenticeships was flat. Since 1999, new registrations have climbed significantly as many provinces expanded training and incentives for trades training. However, completions have not increased over the same period, due in part to a lag between registrations and completions.

Over the years, concern has been expressed about the need to attract more young people into trades training. Recent initiatives by provincial and federal governments have led to increased registrations in apprenticeships. Despite this, there are some parts of the country, specifically the west, where skill shortages in the trades are evident. In some cases, these are affecting the labour-market situation for large industrial projects.

SKILLED AND ADAPTABLE WORKFORCE

Figure 1.6.1 **Number of apprentices by registrations and completions, Canada, 1991–2004**

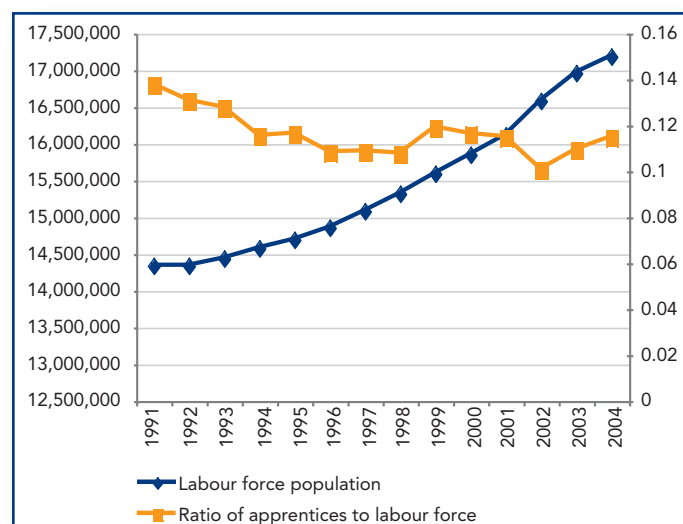


Source: Statistics Canada, Registered Apprenticeship Information System, 2004

Skill requirements and the labour-force composition are not static and there are many factors affecting the ratio of apprentices to the labour force. Given the composition of Canadian industry and high demand for tradespersons in certain parts of the country, this is a situation that needs to be monitored.

The following graph (Figure 1.6.2) shows that the ratio of apprentices to the labour force has actually declined since 1991, although the ratio increased between 2002 and 2004.

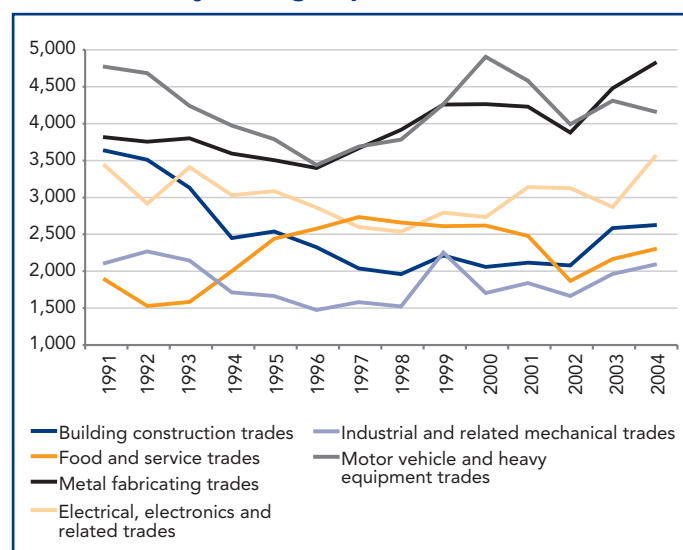
Figure 1.6.2 **Ratio of apprentices to the labour-force population (15 and over), Canada, 1991–2006**



Source: Statistics Canada, Labour Force Survey, 2006, and the Registered Apprenticeship Information System, 2004

The chart below (Figure 1.6.3) illustrates apprenticeship completions by trade, between 1991 and 2004. There were declines in the motor-vehicle and heavy-equipment trades, the industrial and related mechanical trades, and the building-construction trades. Since 2000, four of the six trades illustrated below show increases in completions, but these gains are very modest and, in some cases, simply take completion levels back to early 1990s levels.

Figure 1.6.3 **Registered apprenticeship completions by trade group, Canada 1991–2004**



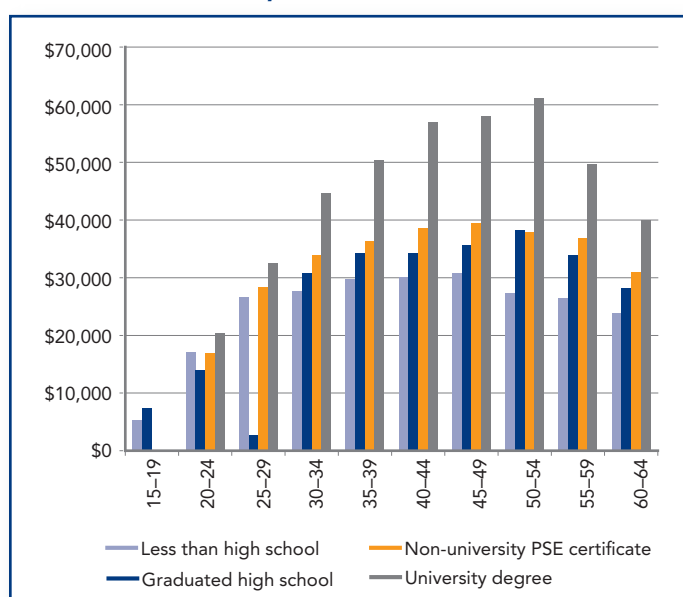
Source: Statistics Canada, Registered Apprenticeship Information System, 2004, and CANSIM, tables 477-0051 and 477-0052

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1.7 INCOME BY AGE, BY EDUCATIONAL LEVEL

There is a strong relationship between income and education level that is clearly illustrated in available data. Individuals aged 40 to 59 with a university education earn approximately double the income of their peers who did not graduate from high school. The earnings differential peaks for the cohort aged 50 to 54, where university graduates earn, on average, 2.2 times more than workers with no high-school diploma.

Figure 1.7.1 **Average employment income by age group and education level (all workers), Canada, 2004**

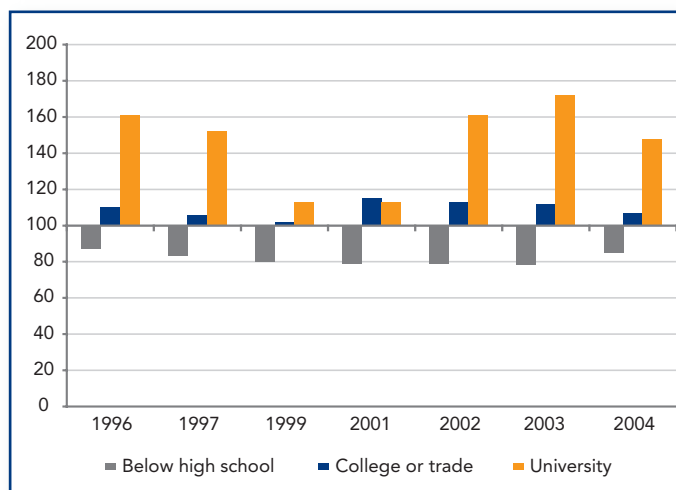


Source: Statistics Canada, *Survey of Labour and Income Dynamics*, 2004

Comparing the relative earnings of the population by level of education, the basic relationships tend to stay the same over time: those with university earn the highest incomes; those with college earn more than high-school graduates; and, those who have not completed high school are among the lowest income earners.

Figure 1.7.2 also reveals that, between 1996 and 2003, the relative earnings of those who have not completed high school are now at 85% of a high-school graduate, compared to about 90% in 1996.

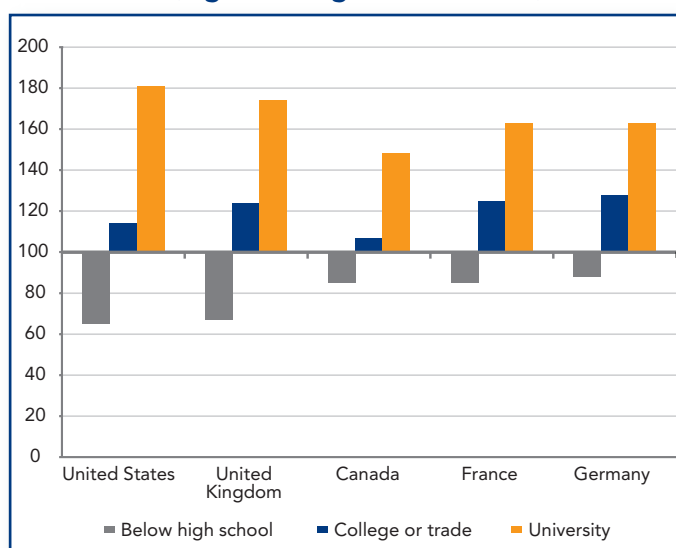
Figure 1.7.2 **Relative earnings of the population with income from employment, by level of educational attainment, Canada, 1996–2004 (high-school graduation=100)**



Source: OECD, *Education at a Glance*, various years and CCL custom tabulation for the 2004 data

The trend of higher income accruing to those with higher levels of education holds across OECD countries, as illustrated below in Figure 1.7.3. There are similar patterns of greater compensation for those with higher levels of education across most jurisdictions.

Figure 1.7.3 **Relative earnings of 25-64-year-olds with income from employment (2004 or latest), by level of educational attainment, selected OECD countries (high-school graduation=100)**

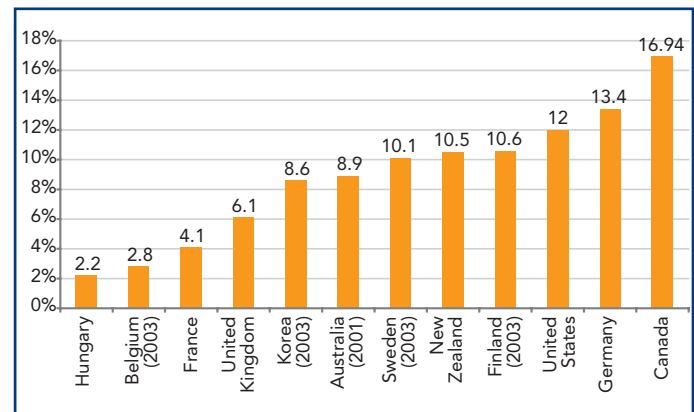


Source: Statistics Canada, *Survey of Income and Labour Dynamics*, 2004 and OECD, *Education at a Glance*, 2006

Data show that having a university degree is not a guarantee of higher income. The higher average earnings expected as a result of PSE (income premium) is not equally distributed. In fact, one-quarter of university-degree holders earn less than the average high-school graduate (this is known as a negative premium). The top 25% of earners with a university degree experience a premium of more than 80%.⁶

Internationally, this disparity is highest in Canada, where close to 17% of those with a university degree earn half (or less) of the median income in Canada. This compares to 12% in the U.S. and 6% in the U.K. While a vast array of factors could contribute to lower income levels, further study is needed to determine if this indicates underemployment or underutilization of highly skilled people. Such a study would be particularly useful given demographic shifts that will result in fewer entrants into the labour market.

Figure 1.7.4 **Proportion of 25- to 64-year-olds with a university degree, earning half of the median earnings or less, 2004**



Source: OECD, *Education at a Glance*, 2006

FACTORS FOR SUCCESS

Canada has had a positive record of improving the educational attainment of its working population. Educational expenditures that have been steadily increasing for almost two decades have yielded strong results for those with a post-secondary education. The percentage of the population with a degree above bachelor has doubled and the number of those with a PSE certificate or diploma has increased significantly. Canada must continue to provide the adequate conditions for a high-level PSE sector in order to ensure the sufficient and timely supply of highly skilled workers.

A recent assessment of labour-market performance in Canada reported strong rates of growth in employment in the last several years. In fact, since the early 1990s, Canada appears to have utilized the skills of its highly educated labour force relatively well. Even during periods of high unemployment (11.4% in 1993), the unemployment rate for those with a university degree was almost three times lower than for those without a high-school diploma. Such evidence reinforces the importance of a post-secondary education in providing individuals with better career opportunities and in alleviating the burden of unemployment, with its subsequent expenditures in social welfare programs.

POSITIVE DEVELOPMENTS AND TROUBLING TRENDS

Better linkages between PSE institutions and the labour market

Canada must improve substantially the links between educational institutions and the labour market. Recent projections of the future Canadian labour market reiterate that there will be unprecedented demand for post-secondary graduates, as the majority of jobs and occupations that will experience excess demand will require PSE qualifications.⁷ Another incentive for stronger linkages is the demographic projections that show Canada's lower fertility rates, along with the aging population, will result in much slower labour-force growth.

Part of the response to these new labour-market realities will require that PSIs satisfy the needs of non-traditional learners and those who have been under-represented—such as Aboriginal people and people with disabilities. CCL's survey of Canadian attitudes toward PSE revealed that young, full-time students appear quite satisfied with the quality and relevance of their PSIs, but mature, part-time students are much less content. It is these mature learners who, in our emerging demographics, will become essential as clients of PSE and as participants both in our labour market and in any productivity gains that Canada will make.

The growing gender gap

In 2006, unemployment rates for all levels of education declined to their lowest level in 15 years, because of strong economic conditions. Those without a high-school diploma experienced their lowest unemployment rates (below 10%) in decades, signalling their success in obtaining jobs in certain regional labour markets that are expanding rapidly.

Nonetheless, the untold story here is the effect such a phenomenon is having on PSE enrolment and attainment rates of young Canadian males who are dropping out of high school to gain well-paying jobs. Already, this is influencing the number of first-degree holders in universities in Canada. Between 1992 and 2004, the percentage of male first-degree holders has steadily declined from 43% to 39%.

This issue goes beyond narrowing the gender gap in Canada, which will be discussed in a later chapter. This is closely linked to productivity levels that are tied with the skills and abilities of the Canadian labour force. As these percentages continue their downward movement, a good segment of the population will have lower-level skills that will not serve Canada's knowledge-based economy or its evolving society. Canada, then, will be faced with an aging labour force that increasingly lacks adequate skill levels to adjust to the changing labour market and is unable to pursue new jobs that require PSE, should their employment circumstances change. This implies a need for greater attention to the importance of lifelong learning opportunities, and the infrastructure and mechanisms to respond to the needs of a growing portion of the labour force.

Apprenticeship completion rates

There remains an evident disparity between Canada's continuing and pervasive concern about shortages in the skilled trades, on the one hand, and our recent record of apprenticeship completions on the other. Although it is to be hoped that increased apprenticeship registrations over the past few years will result in increased numbers of certified apprentices, this is an imperative that requires more than a hopeful attitude. It is also striking to note that, in a country wishing to be open to the world, Canadian regions are insufficiently open to each other. For example, only 13% (49/370) of trades are accredited throughout the provinces of Canada. Taken together, the realities of continuing low apprenticeship completion rates and inadequate pan-Canadian mobility of skilled workers make it difficult to foresee how pressing national labour market needs will be met in the trades sector.

Underutilization of skill sets

Recent data provide further evidence to the already well-established relationship between income and education. Income data reveal that the earnings differential between university graduates and those without a high-school diploma peaks between the ages of 50 and 54, when the former group earns more than double the latter's income.

Although it is true that there exists, on average, a strong remuneration premium for university graduates, it is also true that 25% of university-degree holders in Canada—a high number—earn less than the average high-school graduate. In addition, Canada accounts for the highest percentage, among OECD countries, of university graduates earning half or less the median income, with 17% compared to 12% in the U.S., 6% in the U.K. and 4% in France. It is essential to determine whether we are underutilizing the skill sets that our graduates possess, thereby undermining potential gains in productivity for the country as a whole.

Chapter 2 Innovation, Knowledge Creation And Knowledge Transfer

2.1 OVERVIEW

Research is the root of innovation, revealing solutions to a range of health, environmental, social and economic challenges and inspiring the growth of new industries. Like most developed countries, Canada is pursuing an ambitious research and development (R&D) agenda through a variety of policies and programs designed to generate societal benefits while promoting economic growth and international competitiveness. Such initiatives usually include active engagement of the PSE sector. The sector creates conditions for the effective mobilization and commercialization of knowledge generated through research, and the hiring of highly qualified personnel by the private, public and not-for-profit sectors. In fact, post-secondary institutions play an exceptionally important role in Canada, which depends more on higher education for R&D than do most other developed countries. Some provinces are almost entirely dependent on the PSE sector for substantial research activity.

CCL's 2006 report on PSE found that, despite federal efforts over the previous decade to boost Canadian R&D, Canada is trailing behind its major competitors in R&D investment. The report noted that the failure to produce enough new doctoral graduates is a major obstacle to future innovation. It also underlined that there is currently no way to gauge whether new knowledge is being applied in the private sector through commercialization.

In May 2007, the federal government announced "Mobilizing Science and Technology to Canada's Advantage," a strategy designed to boost private-sector investment in R&D and enrolment in university science and engineering programs. The federal strategy sets out a multi-year science and technology agenda to foster three "advantages" that build on Canadian strengths: an "entrepreneurial advantage," a "knowledge advantage" and a "people advantage." The people advantage component of the strategy consists of initiatives to attract, retain and train the highly skilled workers required to foster innovation in the country. It includes stable funding for PSE, modernizing student financial assistance, an international marketing program and support for research internships.

This chapter presents a series of well-developed indicators that track Canada's progress in R&D and situate its performance relative to other countries.

2.2 R&D AS A SHARE OF GDP

SOME DEFINITIONS

GERD: Gross expenditures on R&D, refers to the total R&D expenditures from all sectors (business, government, post-secondary education and private not-for-profit)

HERD: Higher-education expenditures on R&D

BERD: Business enterprise expenditures on R&D

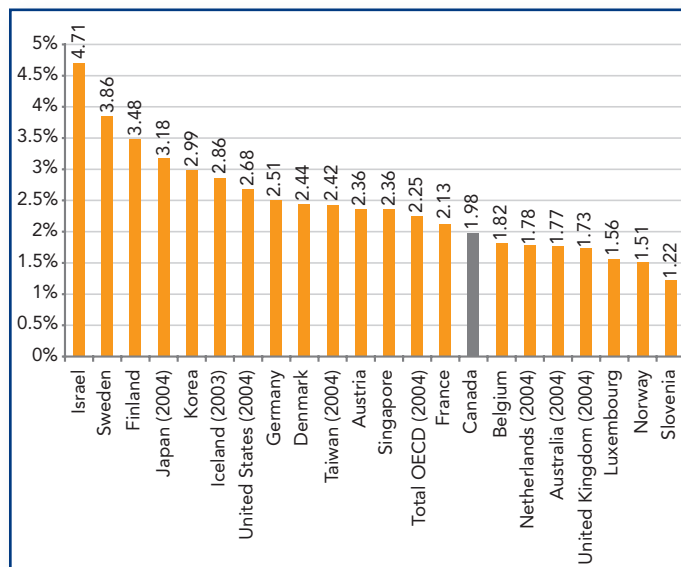
R&D intensity: Any one of these variables (GERD, HERD or BERD) expressed as a percentage of the Gross Domestic Product (GDP). GERD, HERD and BERD are internationally recognized as important indicators of a country's R&D intensity.

Despite the significant gains in Canada's R&D investments between 1990 and 2000, the country's expenditures as a percentage of GDP were consistently below the OECD average. GERD in Canada has declined since 2001. In 2005 it was 1.98% of GDP, compared to 2.68% in the U.S. and 3.18% in Japan.

Canada's proportion of GERD to GDP ranked 15th among 39 OECD countries in 2005, the same position held by Canada in 2001. However, Canada's 2005 level of GERD slipped to 1.98% compared with 2.01% in 2004.

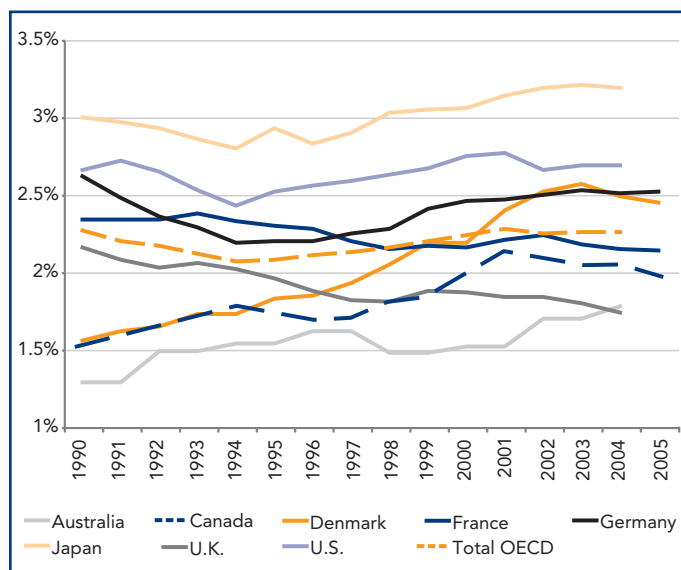
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Figure 2.2.1 R&D intensity in top 20 OECD countries, GERD/GDP, 2005



Source: OECD, Main Science and Technology Indicators 2006-2

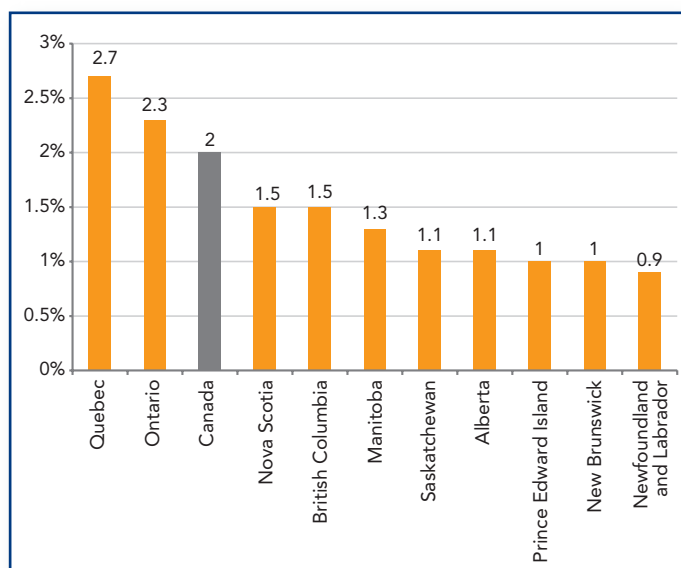
Figure 2.2.2 R&D intensity in selected OECD countries, GERD/GDP, 1990 to latest available year



Source: OECD, Main Science and Technology Indicators 2006-2

R&D expenditures within Canada continue to reflect the industrial structure of the country, with a concentration of activity in Quebec and Ontario. These are the only provinces with expenditures above the Canadian average and higher than the OECD average.

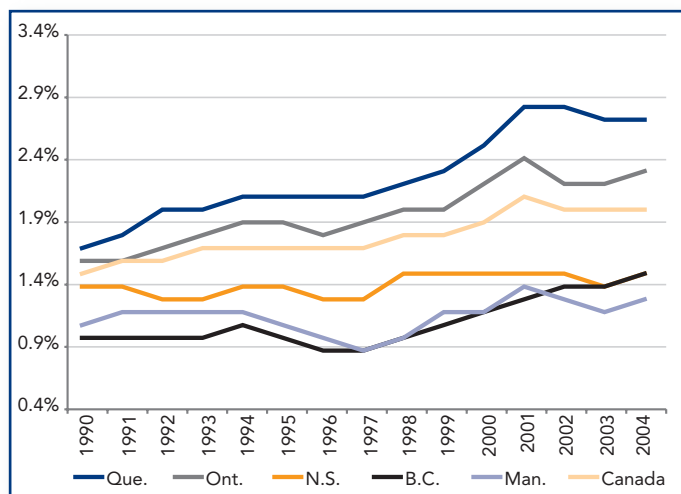
Figure 2.2.3 R&D intensity, GERD as a share of provincial GDP, provinces and Canada, 2004



Source: Statistics Canada. Science Statistics. Science, Innovation and Electronic Information, Vol. 30, No. 7. Catalogue No 88-001-XIE, 2006

There was no consistent pattern in R&D growth at the provincial level between 1990 and 2004. Five provinces had R&D ratios of 1% (or less) of provincial GDP. R&D intensity in those provinces, as a share of provincial GDP, fluctuated significantly from year to year because of the relatively small numbers involved. B.C., Ontario, Quebec and Manitoba experienced growth in the late 1990s, which peaked in 2001 for the latter three. Some growth has been recorded in Ontario, Nova Scotia, B.C. and Manitoba since 2003.

Figure 2.2.4 R&D intensity, GERD as a share of provincial GDP, selected provinces and Canada, 1990-2004



Source: Statistics Canada. Science Statistics. Science, Innovation and Electronic Information, Vol. 30, No. 7. Catalogue No 88-001-XIE, 2006

2.3 R&D EXPENDITURES BY SECTOR

In common with all OECD countries, business enterprise expenditures on R&D (BERD) are the largest contributor to R&D in Canada, accounting for about half of total expenditures. However, the PSE sector in Canada has experienced the highest rate of growth over the last 10 years—more than twice the rate of growth for the business sector.

Canada relies more heavily on post-secondary institutions for R&D than do other OECD countries. In 2006, approximately 38% of GERD in Canada was performed by the tertiary-education sector. This compared to approximately 27% in Australia (2005), 23% in the U.K. (2005), 14% in the United States (2005), 17% in Germany (2005) and roughly 13% (2005) in Japan.

Table 2.3.1 reflects expenditures by the performing sector, while Table 2.3.2 presents expenditures by the funding sector.

Table 2.3.1 **Canadian GERD, by performing sector, 1990–2006 (in millions of dollars)**

	JURISDICTION AND R&D CONTRIBUTING SECTOR			HIGHER EDUCATION	PRIVATE NOT- FOR-PROFIT ORGANIZATIONS	CANADA, TOTAL
	FEDERAL GOVERNMENT	PROVINCIAL GOVERNMENTS	BUSINESS ENTERPRISE			
1990	1,654	302	5,169	3,033	102	10,260
1991	1,685	328	5,355	3,292	110	10,770
1992	1,716	293	5,742 ^e	3,519	68	11,338
1993	1,757	269	6,424	3,660	74	12,184
1994	1,753	260	7,567 ^e	3,675	86	13,341
1995	1,727	254	7,991	3,691	91	13,754
1996	1,792	242	7,997	3,697	89	13,817
1997	1,720	214	8,739	3,879	82	14,634
1998	1,743	216	9,682	4,370	77	16,088
1999	1,859	233	10,400	5,082	63	17,637
2000 ^r	2,080	255	12,395	5,793	57	20,580
2001 ^r	2,103	307	14,272	6,424	63	21,169
2002 ^r	2,190	315	13,516	7,455	63	23,536
2003 ^r	2,083	315	13,704	8,143	92	24,337
2004 ^r	2,083	326	14,441	9,037	116	26,003
2005 ^p	2,162	336	14,655	9,900	121	27,174
2006 ^p	2,145	345	14,850	10,890	127	28,357
Percentage change 1996–2006	19.7%	42.6%	85.7%	194.6%	42.7%	105.2%

r = Revised

p = Preliminary

e = Estimate, as a complete survey was not conducted

Source: Statistics Canada. *Science Statistics*. Science, Innovation and Electronic Information, Vol. 30, No. 7. Catalogue No 88-001-XIE, 2006; and CCL calculations

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Table 2.3.2 Canadian GERD, by funding sector, 1990–2006 (in millions of dollars)

	FEDERAL GOVERNMENT	PROVINCIAL GOVERNMENTS	BUSINESS ENTERPRISES	HIGHER EDUCATION	PRIVATE NOT- FOR-PROFIT ORGANIZATIONS	TOTAL
1990	2,859	641	3,960	1,618	233	10,260
1991	2,946	696	4,113	1,735	267	10,770
1992	3,109	644	4,445 ^e	1,867	224	11,338
1993	3,156	665	5,025	1,892	276	12,184
1994	3,094	663	5,874 ^e	1,914	298	13,341
1995	2,989	652	6,288	1,926	309	13,754
1996 ^r	2,815	629	6,396	1,905	358	13,817
1997	2,813	658	7,031	1,971	367	14,634
1998	2,831	639	7,354	2,339	372	16,088
1999	3,216	770	7,917	2,649	380	17,637
2000 ^r	3,560	878	9,224	2,892	445	20,580
2001 ^r	4,096	1,048	11,643	2,928	536	23,169
2002 ^r	4,254	1,185	12,086	3,462	628	23,539
2003 ^r	4,533	1,396	12,057	3,589	637	24,337
2004 ^r	4,666	1,407	12,743	4,126	729	26,003
2005 ^p	4,978	1,520	13,004	4,498	799	27,174
2006 ^p	5,227	1,644	13,245	4,948	877	28,357
Percentage change 1996–2006	85.7%	161.4%	107.1%	159.7%	145%	105.2%

r = Revised

p = Preliminary

e = Estimate, as a complete survey was not conducted

Source: Statistics Canada. Science Statistics. Science, Innovation and Electronic Information, Vol. 30, No. 7. Catalogue No 88-001-XIE, 2006; and CCL calculations

Table 2.3.3 Percentage of GERD performed by higher-education sector, selected OECD countries, 1997–2005, plus 2006 for Canada

	1997	1999	2001	2003	2004	2005	2006
Australia	..	..	..	..	27.2	27.2*	
Canada	26.5	28.8	27.7	33.5	34.8	36.4	38.4 ^p
France	17.4	17.2	18.9	19.4	19.2	19.5	
Germany	17.9	16.5	16.4	16.9	16.5	16.5	
Japan	14.3	14.8	14.5	13.7	13.4	13.4*	
Norway	26.6	28.6	25.7	27.5	29.6	29.9	
Sweden	21.4	21.4	19.8	22	22**	20.8	
United Kingdom	19.7	19.6	22.1	22.5	23.4	23.4*	
United States	11.7	11.5	12.1	13.7	13.6	13.6*	

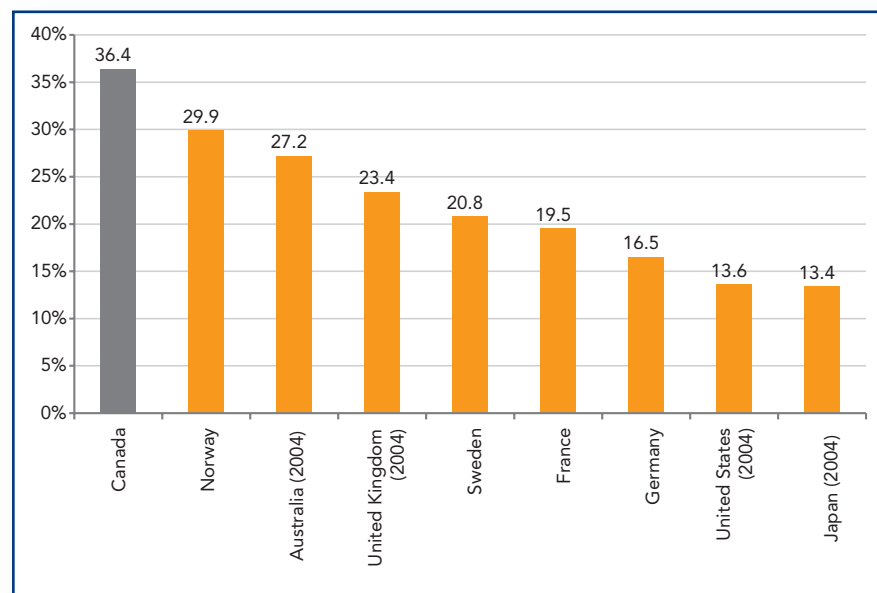
p = preliminary

* 2004 reference year

** 2003 reference year

Source: OECD, Main science and technology indicators V2, 2006

Figure 2.3.1 **Percentage of GERD performed by higher-education sector for selected OECD countries, 2005**



Source: OECD, *Main science and technology indicators V2, 2006*

Table 2.3.4 shows that Canada's tertiary-education expenditures on R&D as a percentage of GDP have been increasing steadily since the mid-1990s and are significantly higher than the OECD average.

Table 2.3.4 **Higher-education expenditures on R&D (HERD) as a percentage of GDP, selected OECD countries, 1995–2004 and 2005–2007 for available countries**

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Canada	0.46	0.44	0.44	0.48	0.52	0.54	0.58	0.65	0.67	0.7	0.72	0.75
France	0.38	0.38	0.38	0.38	0.37	0.4	0.42	0.42	0.42	0.41	0.42	..
Germany	0.4	0.41	0.4	0.4	0.39	0.4	0.4	0.42	0.43	0.41	0.42	..
Japan	0.6	0.42	0.41	0.45	0.45	0.44	0.45	0.44	0.44	0.43	..	..
United Kingdom	0.37	0.36	0.36	0.35	0.37	0.38	0.4	0.42	0.4	0.4	..	..
United States	0.31	0.31	0.3	0.3	0.31	0.31	0.33	0.36	0.37	0.36	..	..
Total OECD	0.34	0.34	0.34	0.35	0.35	0.36	0.37	0.39	0.39	0.39	..	..

Source: OECD, *Main science and technology indicators V2, 2006*

2.4 NATIONAL R&D TARGETS BY COUNTRY

Many jurisdictions have articulated national R&D targets as part of their goal-setting exercises. The EU, for example, has the target of reaching 3% of GERD to GDP by 2010. Currently, GERD to GDP in many of the European Union's member countries is between 2% and 3% (2005).

Table 2.4.1 **National R&D targets (GERD to GDP)**

COUNTRY/REGION	TARGET	CURRENT GERD TO GDP
Austria	2.5% by 2006	2.36% in 2005
Canada	No targets	1.98% in 2005
France	3% by 2010	2.13 in 2005
Germany	3% by 2010	2.51 in 2005
Korea	Double national R&D investments, 2003–2007	2.99 in 2005
U.K.	2.5% by 2014	1.77 in 2004
EU	3% by 2010	1.77 in 2005

Source: Association of Universities and Colleges of Canada. *Momentum: The 2005 Report on University Research and Knowledge Transfer*, 2005 p.11; and the Canadian Council on Learning, update of the current GERD to GDP

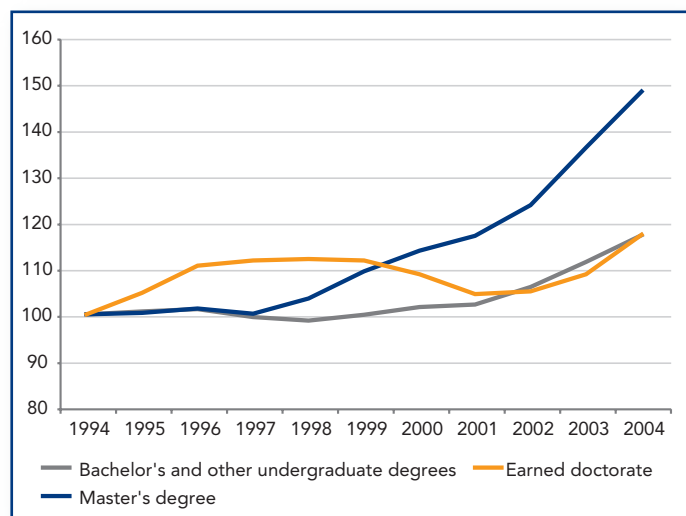
2.5 NUMBER OF DEGREES AWARDED

The education and development of highly skilled human resources is a key component of a country's ability to be innovative and to create new products and services for the knowledge economy. Many countries track the number of degrees awarded as a proxy that measures the responsiveness of educational institutions to the demand for knowledge workers. Lately, there has also been increased international attention given to graduate degrees, which are seen as linked to advanced research that tends to support innovation.

Between 1997 and 2003 there was a significant increase in the number of master's degrees awarded in Canada. The number of doctorate degrees also increased during the same period, although at a slower rate. The change in the number of bachelor's degrees awarded remained flat throughout the mid- to late-1990s and then slowly, but steadily, increased between 2000 and 2004.

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Figure 2.5.1 Change in the number of degrees awarded in Canada, 1994–2004 (1994=100)



Source: Statistics Canada, *Post-secondary Student Information System (PSIS)*, 2004

An international comparison of the percentage of doctoral graduates to the population shows that Canada's rate lags the OECD average and is below Germany, Australia, the U.K., the U.S., France and Sweden. This has raised concerns in the PSE community for a number of reasons, aside from the link between doctoral graduates and the provision of highly skilled labour and research. For example, doctoral graduates are the next generation of professors, and with the aging profile of the current professorial ranks there may be shortages of qualified academics to replace those who retire in the next 10 years.

Between 2003 and 2004, Canada's percentage of doctoral graduates to the population increased very slightly from 0.9% to 1.0%.

Table 2.5.1 Percentage of tertiary graduates with doctorates to the population at the typical age of graduation⁸

	DOCTORATE
Germany	2%
Australia	1.3%
Canada (2004)	1%
U.S. (2000)	1.3%
Finland (2001)	1.9%
France (2001)	1.4%
U.K.	1.6%
Sweden	2.8%
OECD average (17 countries)	1.2%

Source: Council of the Federation, February 2006 and CCL update for the Canada figure

A new project initiated in 2004 by the OECD, in co-operation with Eurostat and the UNESCO Institute for Statistics, is designed to collect regular and internationally comparable information on the careers and mobility of doctorate holders. Seven countries, including Canada, are participating at this time.

Results from the first data collection in 2005 are presented in Table 2.5.2. They show that the number of doctorate holders per thousand population in Canada is less than half that of Germany and nearly one-quarter that of Switzerland. Canada is also falling behind the U.S., although Canada produced more new doctorates (3.9 per 100 university graduates) than the U.S. in 2003, Canada was still lagging behind Germany, Switzerland and Portugal.

Table 2.5.2 Number of doctorate holders in the population

	ARGENTINA (2005)	AUSTRALIA (2001)	CANADA (2003)	GERMANY (2003)	PORTUGAL (2004)	SWITZERLAND (2003)	U.S. (2003)
Number of doctorate holders/1000 population ¹	0.2	5.9	6.5	15.4	2.1	23	8.4
Number of doctorate holders/1000 labour force ¹	0.5	7.8	8.2	20.1	2.6	27.5	10.7
Graduation rates at doctoral level ²		1.3%	0.8%	2.0%	2.5%	2.6%	1.3%
New doctorates per 100 university graduates		2.3	3.9	11.2	7	10.1	2.3

1. Doctorate holders and population aged 25–64 years, except Argentina (total doctorate holders and total population).

2. Graduation rates are for 2002: they are calculated as the number of persons receiving a doctorate-level degree as a percentage of the population at the typical age of graduation.

Source: First OECD/Eurostat/UIS data collection on careers of doctorate holders and OECD Education database.

Table source: Auriol, L. *Labour-Market Characteristics and International Mobility of Doctorate Holders: Results for Seven Countries*. OECD, DSTI/DOC (2007)2, p. 8

The age profile of doctorate holders across the seven countries shows significant differences as well. The United States has an older population of doctorate holders than the other countries and, in both Canada and the U.S., the average age of doctorate holders is increasing.⁹

A notable difference between countries is the birthplace of those holding doctoral degrees. The OECD study reveals that Canada had the highest proportion of foreign-born doctorate holders of the seven countries surveyed. In 2001, 54% of doctorate holders in Canada were foreign-born compared to 12% in Germany (2004), 41% in Switzerland (2004), 46% in Australia and 26% in the U.S. (2003).¹⁰

Special attention is often paid to the technical degrees, such as engineering, computer science, math and the physical sciences, because of their close links to innovation and research in the business sector. Canada has shown absolute increases in graduate technical degrees between 1994 and 2004. When the number of graduate degrees is expressed as a percentage of total degrees awarded, only the rate for master's degrees in engineering and computer science degrees has increased, with the similar figure for master's degrees in math and physical sciences declining over the last ten years. Doctoral degrees for all technical categories (as a percentage of total degrees) declined between 1994 and 2004. This is viewed by many as a cause for concern if Canada is to maintain its position in research.

The data show that women are still under-represented in graduate programs in the technical fields.

Table 2.5.3 **Number of masters and doctorates granted in engineering/computer science and math/physical sciences, 1994 and 2004**

	ENGINEERING & COMPUTER SCIENCE			MATH AND PHYSICAL SCIENCES		
	Number granted	Percentage of total degrees	Percentage male	Number granted	Percentage of total degrees	Percentage male
MASTER'S						
1994	2493	11.7%	81.6%	882	4.1%	70.1%
2004	4854	15.4%	73.4%	1167	3.7%	60.9%
DOCTORATES						
1994	663	18.7%	91.9%	588	16.6%	81.6%
2004	708	17%	84.3%	531	12.8%	72.3%

Source: Statistics Canada, Post-secondary Information System (PSIS), 2004

An international perspective on degrees granted in technical areas shows that, despite Canada's high educational attainment, Canada ranks tenth in the share of science and engineering degrees as a percentage of new degrees and ninth in PhDs in science and engineering as a share of graduates. Some have questioned whether this underperformance will eventually impact Canada's productivity and standard of living.

Table 2.5.4 **International perspective on highly trained people**

	PERSONS WITH PSE AS % OF 25- TO 64-YEAR-OLDS (2003) ¹		SHARE OF SCIENCE & ENGINEERING DEGREES AS % OF NEW DEGREES (2003) ²		PHDS IN SCIENCE & ENGINEERING AS A SHARE OF GRADUATES (2002) ³		BUSINESS RESEARCHERS PER 1,000 EMPLOYMENT ⁴	
	Percentage	Rank	Percentage	Rank	Percentage	Rank	Percentage	Rank
Canada	44	1	20.4	10	0.3	9	4.4	5
U.S.	38.4	2	15.7	11	0.45	8	7.5	2
Japan	37.4	3	25.9	7	0.27	10	7	3
Sweden	33.4	4	31	1	1.37	1	6.4	4
Finland	33.3	5	29	3	0.7	6	10	1
Australia	31.3	6	21.6	9	0.52	7	2	10
U.K.	28	7	28.2	6	0.81	3	3.2	9
Switzerland	27	8	28.5	5	1.06	2	4	6
Germany	24	9	30.9	2	0.73	5	4	7
France	23.4	10	28.7	4	0.8	4	3.8	8
Italy	10.1	11	22.9	8	0.2	11	1.2	11

1. Italy 2002

2. Canada 2000

3. Canada 2000; Finland, France, & Italy 2001

4. U.K. 1998; U.S. 1999; Switzerland 2000; Sweden 2001; Canada, Australia, France, & Italy 2002; others 2003

Source: Council of Canadian Academies. *The State of Science and Technology in Canada* (Ottawa: 2006)

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2.6 PERSONNEL IN R&D BY SECTOR

Another useful statistic tracked by the OECD is the number of personnel engaged in R&D in its member countries. Although Canada's total research personnel increased by 38% between 1994 and 2004, Canada's total R&D personnel per thousand of total employment still falls behind many countries.

During the 1994–2004 period, research personnel employed in the government sector recorded a decline of almost 20%. Some of this may be explained by a change in the way governments do business—i.e., they may outsource research that they once performed internally. However, in general, the trend over the last decade has been solid growth (60%) in the business sector with slower growth (26%) in the higher-education sector. Comparable growth in the private not-for-profit sector was recorded in 2003 and 2004, after several years of decline in employment.

Table 2.6.1 Number of personnel engaged in R&D, by sector of performance, Canada, 1993–2004

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	PERCENTAGE CHANGE 1994–2004
Government**	20,950	20,180	18,780	17,720	16,920	16,580	16,600	17,410	16,470	16,780	16,140	16,280	-19.3%
Business enterprise*	61,530	78,880	82,010	79,340	82,650	85,940	91,310	104,720	115,790	118,280	120,220	126,670	60.6%
Higher education	43,670	43,460	43,020	45,430	44,920	44,320	44,590	45,150	46,300	47,340	51,880	54,730	25.9%
Private not-for-profit organizations	1,090	1,110	1,160	1,230	1,210	1,030	860	850	890	840	1,280	1,380	24.3%
Total	127,240	143,630	144,970	143,720	145,700	147,870	153,360	168,130	179,450	183,240	189,520	199,060	38.6%

* Natural sciences and engineering only.

** Federal and provincial

Note: Number of personnel in full-time equivalent and rounded to the nearest 10

Source: Statistics Canada. *Science Statistics*. Science, Innovation and Electronic Information, Vol. 30, No. 7. Catalogue No 88-001-XIE, 2006

Table 2.6.2 Total number of R&D personnel per thousand of total employment

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Australia	..	10.6	..	10.9	..	10.6	..	10.6	..	11.4	..	12.3	..	..	..
Canada	9.6	10.7	10.6	10.4	10.4	10.4	10.4	11.2	11.8	11.4	..	..	..	..	..
Denmark	10.7	..	11.5	12.1	12.7	12.9	13.2	13.6	14.3	15.2	15.2	15.6	15.8	..	..
Germany	..	..	12.2	12.1	12.3	12.2	12.5	12.4	12.2	12.3	12.2	12.1	12.1	..	..
Japan	14.3	14.2	14.2	13.3	13.3	13.9	14	13.7	13.8	13.4	13.9	14.1	..	..	..
U.K.	9.4	..	..	..	..	..	..	..	..	..	..	..	..	..	..
U.S.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total OECD	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Source: OECD, *Main Science and Technology Indicators 2006-2*

2.7 COMMERCIALIZATION

Indicators demonstrating the success of applying research to industrial products and services provide insight into commercialization activities. Data from the AUCC show that between 1999 and 2003 universities increased their commercialization activities in several areas, including patent applications, creation of spin-off entities, licences and value of industrial contracts.

Table 2.7.1 **Universities increasing their commercialization capacity**

INDICATOR	1999	2003	TARGET PERCENTAGE INCREASE
Operational expenditures on IP management	\$22 million	\$36.4 million	65%
Disclosures	893	1133	27%
New patent applications	656	1252	91%
Number of spin-offs	681	850	25%
New licences	232	422	82%
Value of industrial research contracts	\$153.8 million	\$283 million	84%

Source: Association of Universities and Colleges of Canada (AUCC). *Momentum: The 2005 Report on University Research and Knowledge Transfer*, 2005

A comparison of Canadian and U.S. commercialization suggests that Canadian universities compare favourably to their U.S. counterparts in invention disclosures, licence options and creation of spin-offs, but generate only half the licence income for similar investments of American institutions.

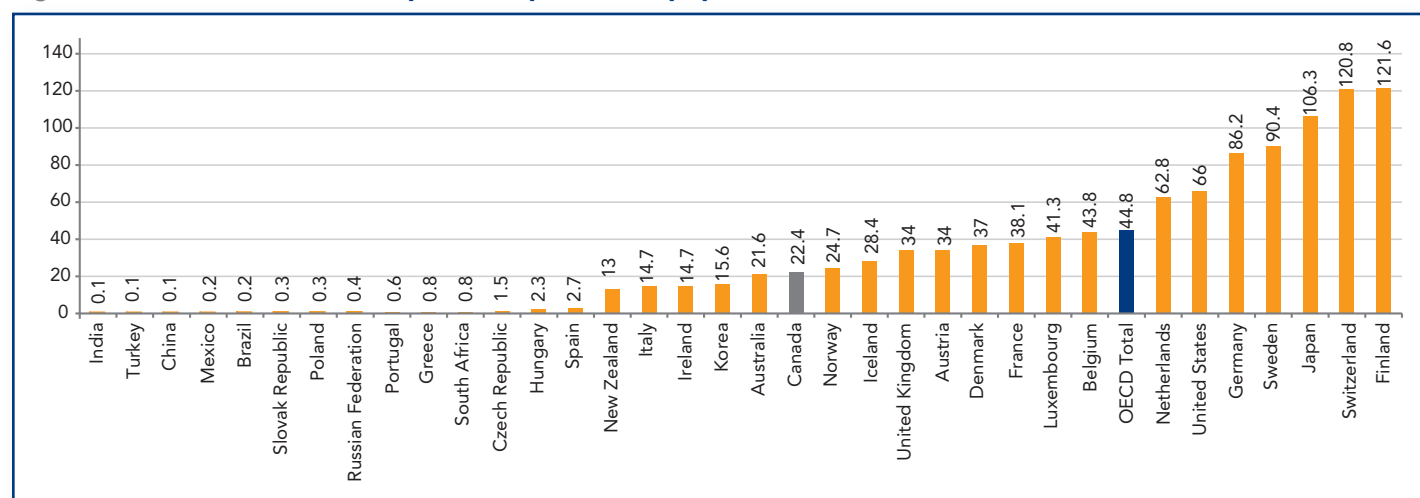
Table 2.7.2 **Comparison of Canadian and U.S. commercialization results, per \$1 million invested in R&D**

	15 OF THE LARGEST CANADIAN RESEARCH INSTITUTIONS	15 OF THE LARGEST U.S. RESEARCH INSTITUTIONS (ADJUSTED FOR INDIRECT COSTS)
Invention disclosures (per \$1 million)	0.69	0.64
Licence and options executed (per \$1 million)	0.22	0.23
Spin-offs created (per \$1 million)	0.05	0.02
Licence income (per \$1 million)	\$18,864	\$36,810

Source: Association of Universities and Colleges of Canada (AUCC), *Trends in Higher Education*, 2002. Figure 5.11, p. 84

Data show that the number of triadic patents¹¹ in Canada is far behind the output of most comparator countries. Canada's rate of 22.43 triadic patents per million population is well below the OECD average. This measure is considered a good indicator of how research is pursued commercially.

Figure 2.7.1 **Number of triadic patents,* per million population, 2003**



* Triadic patent family counts are attributed to the country of residence of the inventor and to the date when the patent was first registered.

Source: OECD Factbook 2007: Economic, Environmental and Social Statistics. Science and Technology, Research and Development (R&D), 2007

PART I REPORTING PERFORMANCE AND PROGRESS OF PSE IN CANADA

2.8 BIBLIOMETRIC MEASURES

Although bibliometric measures—which include the volume and quality of scientific publications—should be used with caution, they are sometimes used as a proxy measure for research productivity. Currently, the field of scientific publications is dominated by scientists from the U.S., who produced 35% of publications in science and engineering between 1997 and 2001. Canada ranked sixth during this period, with 4.6% of total scientific publications.¹²

Statistics show that the rate of growth in Canada's publications is below the world average—4.7% versus 6.4% globally for the period 2001–2004—and has slipped from sixth to eighth place, behind Italy and China.¹³

Table 2.8.1 Rank order of nations based on share of top 1% of highly cited publications, 1997–2001

COUNTRY	PUBLICATIONS				CITATIONS				TOP 1% HIGHLY CITED PUBLICATIONS			
	1993–1997		1997–2001		1993–1997		1997–2001		1993–1997		1997–2001	
	Total	Percentage World	Total	Percentage World	Total	Percentage World	Total	Percentage World	Total	Percentage World	Total	Percentage World
U.S.	1,248,733	37.46	1,269,808	34.86	21,664,121	52.3	10,850,549	49.43	22,710	65.6	23,723	62.76
EU 15 (net total)	1,180,730	35.42	1,347,985	37.12	15,147,205	36.57	8,628,152	39.3	11,372	32.85	14,099	37.3
U.K.	309,683	9.29	342,536	9.43	4,502,052	10.87	2,500,035	11.39	3,853	11.13	4,831	12.78
Germany	268,393	8.05	318,286	8.76	3,575,143	8.63	2,199,617	10.02	2,974	8.59	3,932	10.4
Japan	289,751	8.69	336,858	9.28	3,123,966	7.54	1,852,271	8.44	2,086	6.03	2,609	6.9
France	203,814	6.11	232,058	6.39	2,638,563	6.37	1,513,090	6.89	2,096	6.05	2,591	6.85
Canada	168,331	5.05	166,216	4.58	2,315,140	5.59	1,164,450	5.3	2,002	5.78	2,195	5.81
Australia	89,557	2.69	103,300	2.84	1,078,746	2.6	623,636	2.84	852	2.46	1,049	2.78
Denmark	31,808	0.95	37,198	1.02	508,183	1.23	295,004	1.34	445	1.29	570	1.51
China	68,661	2.06	115,339	3.18	392,055	0.95	341,519	1.56	153	0.44	375	0.99
South Korea	26,838	0.81	55,739	1.53	183,122	0.44	192,346	0.88	97	0.28	294	0.78
India	72,877	2.19	77,201	2.13	316,461	0.76	188,481	0.86	112	0.32	205	0.54
World (net total)	3,333,464	106.23	3,631,368	108.94	41,425,399	118.27	21,953,043	122.97	34,982	127.43	38,263	136.5

Notes:

1. This part of the analysis uses a five-year publication window for all disciplines. For papers published 1993–1997, the total accumulation of citations to the year 2002 is included. For papers published 1997–2001, the total number of citations to the year 2002 is also included, but, given the shorter time period, fewer citations will have accumulated.
2. The main source of internationally comparable data on research funding, staff and training is the OECD (see 'statistics' at <http://sourceoecd.org/content/html/Index.htm>). Data also come from the 2002 editions of the Main Science and Technology Indicators and Basic Science and Technology Statistics. The Frascati Manual data definitions and their interpretations of OECD data have been adhered to wherever feasible.
3. Each cited paper is allocated once to every country in which an author is based, so some papers are counted twice or more.

Source: King, D. "Scientific Impact of Nations", *Nature*, Vol. 430, July 2004

FACTORS FOR SUCCESS

The higher education sector has experienced the highest rate of growth in R&D expenditures during the last decade—more than twice the rate of growth for the business sector.

Canada's R&D personnel increased by 38% between 1994 and 2004. Of special note are the relatively good growth in R&D personnel in the private not-for-profit sector and the somewhat slower growth in higher education R&D personnel.

POSITIVE DEVELOPMENTS AND TROUBLING TRENDS

Low levels of private support for R&D

In Canada, the private sector does not support R&D as fully as is the case in other developed countries.¹⁴ Since innovation and productivity are linked to applied research functions, Canadian governments and PSIs have partially substituted for private sector under-investment. Canada's ranking in terms of expenditures on R&D as a share of GDP is still 15th among OECD countries, despite the significant gains in R&D spending during the 1990s. Expenditures have been consistently lower than the OECD average for more than a decade; and in 2005 they hit 1.98%, the lowest since 2001. This fact accounts for the relatively higher dependence this country experiences in relation to the research capacity of our PSIs; and this dependence is amplified in smaller provinces. Hence, Canadian policy related to the R&D function of PSIs takes on relatively greater importance than in partner OECD countries.

An emerging priority for Canada, in light of the relatively large contributions of the PSE sector to R&D, is the creation of more explicit linkages, including but not limited to those between post-secondary R&D and its potential users (commercialization) and the optimal relationship among industry, PSE and government. These linkages would support the socially and economically demonstrable beneficial results of the knowledge created.

No national targets for R&D

Unlike many other countries, Canada has no defined national targets related to expenditures on R&D and continues to lack an independent body (not representing providers of PSE and research services) charged with assessing the degree to which new knowledge generated by public investments in research in PSIs is providing economic and social benefits to the country.

Declining numbers of graduate degrees in technical fields

Measuring how many degrees are awarded in Canada can indicate how well PSIs respond to the labour-market demand for skilled workers. As such, graduate degrees acquire more importance because of their close connection with advanced research and technological innovations. In Canada, graduate degrees in technical fields dropped, although there was a significant increase in the overall number of degrees. The number of master's degrees in math and physical sciences—as well as doctoral degrees in all technical fields—declined.

Data show that, among OECD countries, Canada is tenth and ninth respectively in the share of science and engineering degrees and in the share of PhDs in the same field. These rankings are a cause of concern for Canada's research and innovation capabilities. They also raise the question of whether Canada possesses an adequate supply of highly qualified personnel who will serve the country's economic and technological needs, as R&D has a direct impact on productivity levels and standard of living.

Faculty replacement shortages

Graduate-level degrees, particularly doctoral, are important in the replacement of retiring faculty. The age profile of Canadian university educators is older than the labour force and many of them are retiring or will be retiring over the next decade. Evidence from an OECD study indicates that Canada may not have an adequate supply of qualified academics to respond to this need:

- Canada is below the OECD average and behind a number of countries in the ratio of doctoral graduates to the population;
- Canada is behind the U.S. in the number of doctorate holders. The Canadian figure is less than half that of Germany and nearly one-quarter that of Switzerland; and
- Canada has the highest proportion of foreign-born doctorate holders among the OECD countries that were surveyed in the study.

POSITIVE DEVELOPMENTS AND TROUBLING TRENDS (continued)

Improved R&D commercialization

Although Canadian universities have increased their commercialization activities, they generate only half the income of U.S. universities' licences. This is occurring despite an almost equal performance between Canadian universities and their U.S. counterparts in invention disclosure, licence options and spin-off creation. This is a troublesome fact which dictates further examination.

A preliminary investigation reveals an increasing number of Canadian universities take equity holdings in start-up companies, rather than receiving licensing income from larger, well-established firms. Licensing itself is not a major cost for PSIs—most of the investments are assumed by the private sector partners—but it generates revenue immediately and for a longer period of time. Therefore, Canadian universities may be running a bigger financial risk by exposing themselves to the various managerial and cash-flow problems that start-ups face at their inception stage.

Canada's share of international scientific publications

Countries that produce more research and that publish a greater number of scientific articles hold a prestigious position in the world of research and innovation. The publication of scientific articles is, therefore, considered an indication of the universities' research level and intensity. Currently, the field of scientific publications is dominated by scientists from the U.S., who produced more than one-third of science and engineering publications in the world between 1997 and 2001. During the same period, Canada ranked sixth, producing only 6.4% of scientific publications. Globally, Canada's growth in publications is below the world average (4.7% vs. 6.4%) and the country's ranking fell to eighth position, behind Italy and China.

There is a need to look into reasons why Canadian universities are not producing more scientific publications. Of interest to decision-makers is to examine the barriers that Canadian researchers may face in patenting their research or in licensing their products.

Chapter 3 Active, Healthy Citizenry

3.1 OVERVIEW

In Canada, there is limited research on the social outcomes of PSE, with the exception of the health field, where data are now being systematically collected and analyzed, to provide time-series evidence for examination. CCL's 2006 report on PSE in Canada concluded that more research is required on the social benefits of PSE, including development of indicators to measure the extent to which PSE promotes social capital and progress in the country.

A good education offers more to an individual than simply the potential to earn a higher income. Studies have found that individual health status, lifespan and quality of life increase with education. Evidence from the Second Report on the Health of Canadians¹⁵ indicates that people with higher levels of education have better access to healthy environments and are better able to prepare their children for school than people with lower levels of education. They tend to smoke less, be more physically active and eat healthier foods. The report has also found a strong correlation between higher levels of educational attainment and individuals' contributions to their communities.

There is growing consensus among the research community and policy experts that more attention must be paid to the link education has with social and economic well-being. However, the complex interplay of factors that affect outcomes—particularly social outcomes—is such that researchers have been reluctant to draw major conclusions about causation.

The OECD has undertaken an extensive project, called the Social Outcomes of Learning (SOL), that is designed to fill this knowledge gap. Launched in 2005 with the active participation of 13 countries, the SOL project is examining linkages between learning and well-being. The initial focus of the project has centred on two themes: health outcomes of learning, and the civic and social engagement outcomes of learning.

Work is underway to identify measurement issues and data requirements that will produce meaningful and appropriate indicators for social outcomes. The research related to this project looks promising, as it will provide a strong evidence-based framework across several international jurisdictions. In addition to the OECD project, CCL is proposing a new data strategy for Canada, outlined in Part II of this report, which also examines and addresses these issues.

The Symposium on Measuring the Social Outcomes of Learning was held in Denmark in March 2006 to review the project's progress and plan future activities. The

symposium focussed on theoretical issues related to indicator development for social outcomes, such as the factors and relationships that affect indicators.

Papers presented at the symposium outline that schooling interacts with social class, gender and ethnic status; and that there is limited understanding of the inter-relationships among these factors. Also, research emanating from this event suggests there are strong linkages between level of education and determinants of health and mortality—a correlation that requires considerably more attention from decision-makers. Recommendations from the symposium emphasized the need for qualitative evidence that can illuminate the ways in which education benefits health, so that policy conclusions related to curricula and pedagogy at different ages can be drawn.

CCL's 2006 report on PSE briefly explored available research on the relationship between education and social outcomes. Four indicators—voting behaviour, volunteering and giving patterns, health outcomes and attitudes toward diversity—were chosen to illustrate the benefits of PSE for the individual and the community. These indicators were chosen because they represent key social behaviours for individuals and communities, and because related data were available. It is not possible to update the four indicators from last year's report because no new data are available. For the sake of comprehensiveness, last year's material is reproduced here. Additional information on health outcomes, as well as new material from the OECD, has been included.

The 2006 OECD *Society at a Glance* report includes social cohesion indicators that cover the following topics: voting, prisoners, suicides, work accidents, strikes, trust in political institutions and life satisfaction. Only two of these—voter turnout and life satisfaction by level of education—are reported in this chapter.

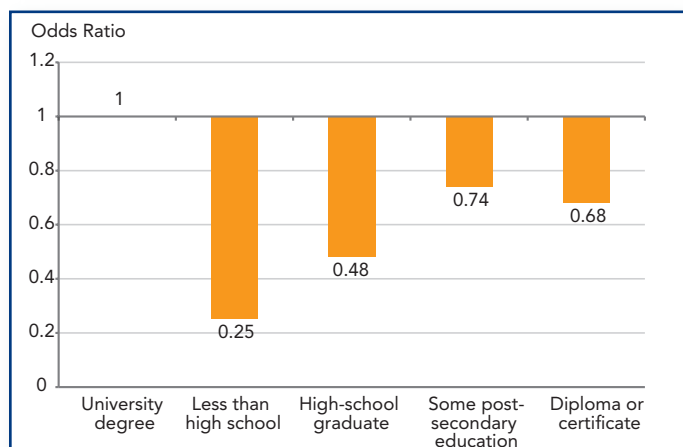
3.2 ACTIVE CITIZENSHIP—VOTING BEHAVIOUR

There are many measures of participation in the life of a community, although few are collected by level of education. The OECD 2006 *Society at a Glance* report tracks voter turnout across its member countries, stating "a high voter turnout is a sign that a country's political system enjoys a strong degree of legitimacy."¹⁶

Research confirms that voting behaviour is strongly related to education. Canadian data about the voting behaviour of young people strongly support this conclusion, showing that those with lower levels of education were less likely to vote.

PART I REPORTING PERFORMANCE AND PROGRESS OF PSE IN CANADA

Figure 3.2.1 Likelihood of voting for 22- to 29-year-olds in any election prior to 2003



Source: Milan, A. "Willing to participate: Political engagement of young adults," *Canadian Social Trends*, N° 70. Statistics Canada Catalogue N°. 11-008, 2005. OECD data reinforce this trend

Table 3.3.1 Voter turnout by level of educational attainment, ratios relative to different groups

COUNTRY	EDUCATIONAL ATTAINMENT	
	Less than high school	Secondary
Australia (2004)	0.97	0.95
Canada (2004)	0.88	0.94
Finland (2004)	1.00	1.02
France (2003)	0.72	0.78
Germany (2002)	0.88	0.95
Japan (2003)	0.95	0.91
U.K. (2002)	0.89	0.88
U.S. (2002)	0.94	0.92
OECD average (23 countries)	0.88	0.92

Notes:

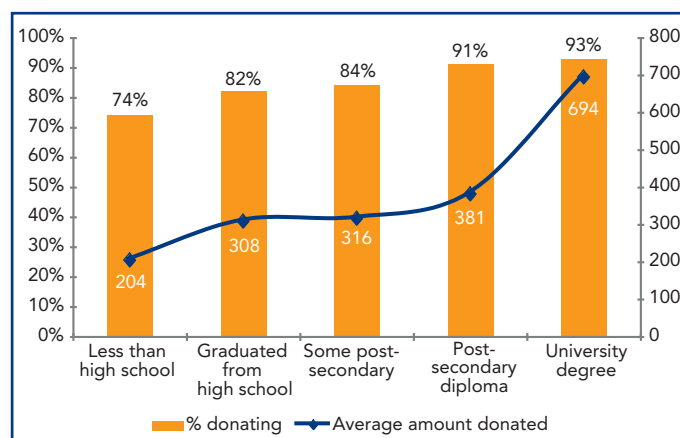
1. Looking at Canada's figure for "Secondary," this means that for every 100 university graduates who voted, 94 high-school graduates voted.
 2. Simple average across the countries listed above. Estimates of the total voter turnout from these surveys may differ from those based on administrative data.
 Source: OECD. *Society at a Glance: OECD social indicators*, 2006

3.3 ACTIVE CITIZENSHIP—PERCENTAGE DONATING AND AVERAGE AMOUNT DONATED

The 2004 Canada Survey on Giving, Donating and Participating reveals that both the percentage of people donating and the average amount donated rise with levels of education. This phenomenon is closely related to income levels, which are associated with educational attainment.

The data show that those with less than a high-school education have lower rates of volunteering and participating, while those with a PSE certificate or university degree have the highest rates.

Figure 3.3.1 Percentage who donate and average donation, Canada, 2004



Source: Statistics Canada. *Caring Canadians Involved Canadians: Highlights from the 2004 Canada Survey of Giving, Volunteering and Participating*, Catalogue N° 71-542-XPE, 2006

3.4 HEALTH OUTCOMES

The relationship between health and level of education involves numerous variables, but people with higher levels of education generally report higher perceptions of good health.

Figure 3.4.1 Self-perceived health status by educational level, Canada, 2001, 2003, and 2005

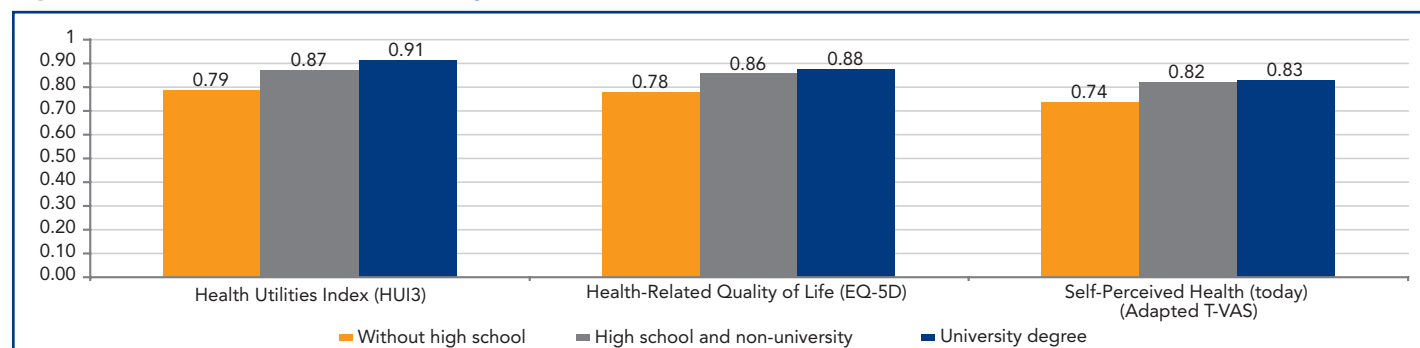
Education	2001			2003			2005		
	Excellent/ Very good	Good	Fair/ Poor	Excellent/ Very good	Good	Fair/ Poor	Excellent/ Very good	Good	Fair/ Poor
Less than secondary-school graduation	44.7%	33.1%	22.2%	43.3%	35.6%	21.0%	42.9%	35.2%	21.8%
Secondary-school graduation	63.4%	26.9%	9.6%	57.7%	32.2%	10.1%	59.4%	30.1%	10.5%
Some post-secondary	62.2%	27.7%	10.9%	59.9%	29.9%	10.1%	59.4%	30.2%	10.3%
Post-secondary graduation	70.5%	23.1%	6.9%	65.7%	27.2%	7.1%	66.9%	25.8%	7.3%

Note: Percentages may not add up to 100% because they do not include the "Don't Know" and "Refusal" responses.

Source: Statistics Canada. Canadian Community Health Survey, cycles 2.1 and 3.1, 2003 and 2005 respectively

Other health indicators show similar trends, with health-related factors increasing positively for those with higher levels of education.

Figure 3.4.2 Mean health outcome by education, Canada, 2000



Source: Belanger, A., Berthelot, J.M., Guimond, E., Houle, C. A Head to Head Comparison of Two Generic Health Status Measures in the Household Population: McMaster Health Utilities Index (Mark 3) and the EQ-5D. Statistics Canada: Unpublished Paper, 2000

3.5 LIFE SATISFACTION

The OECD's 2006 *Society at a Glance* report presents data on life satisfaction by level of education, classified as low, middle and high. These data were compiled from the 1999–2004 World Values Survey. The OECD average reveals a 10-point spread between those with a low education who report a high level of life satisfaction and those with a high level of education reporting the same fulfilment. In general, the percentage of people reporting a high level of life satisfaction increases with the level of education. A sense of well-being and satisfaction is also closely correlated with a host of other factors, such as marital status, socio-economic conditions and where individuals live.

The Canadian data on life satisfaction are above the OECD average for all categories of education and following Australia and Denmark.

Table 3.5.1 Life satisfaction, selected OECD countries, 1999–2004 average

COUNTRY	GENDER		EDUCATION		
	MEN	WOMEN	LOW	MIDDLE	HIGH
Australia	0.83	0.80	0.78	0.85	0.88
Canada	0.78	0.79	0.78	0.77	0.83
Denmark	0.85	0.81	0.82	0.88	0.84
France	0.67	0.64	0.63	0.67	0.70
Germany	0.72	0.74	0.70	0.76	0.75
Japan	0.50	0.53	0.45	0.50	0.62
U.K. ¹	0.76	0.71	0.74	0.72	0.77
U.S.	0.77	0.76	0.73	0.76	0.79
OECD average (26 countries)	0.69	0.68	0.64	0.70	0.74

1. Great Britain only.

Source: OECD. *Society at a Glance: OECD social indicators*, 2006

FACTORS FOR SUCCESS

Higher levels of education contribute to individual well-being and community capacity. There are strong correlations between the level of education and health outcomes, as well as indicators of active citizenship such as volunteering, community participation and voting.

Canada will benefit from the second phase of the OECD project on Social Outcomes of Learning, which aims to develop indicators from existing data sources and identify new data that are required. For example, indicators to measure the extent to which PSE promotes social capital and Canada's success in this regard must be developed.

PSE makes a major contribution to the well-being of individuals and their communities. Healthy, productive and engaged citizens living in socially stable communities with low crime rates are as great a competitive advantage as any other variable in vibrant economies and societies; businesses often choose locations for industrial development based on such factors. Likewise, internationally mobile skilled workers choose countries and communities that are safe, culturally vibrant and that accommodate diversity.

POSITIVE DEVELOPMENTS AND TROUBLING TRENDS

Canada's social cohesion

As Canada increasingly relies on highly skilled immigrants to meet national labour-force and population growth requirements, greater tolerance of diversity is not only a desirable social trait, but essential to social cohesion.

PSE social outcomes

In Canada, data and analysis on the social outcomes of PSE are very limited. Although there is growing recognition of the social impacts of PSE, Canada has no defined objectives to enhance social capital through PSE, against which its performance could be reasonably assessed. Hence, benchmarking the impacts of the social benefits associated with PSE is required.

The physical health of citizens—a significant consideration in light of Canada's aging population and growing pressures on its health system—and the health of Canadian democracy are closely linked to PSE achievement levels.

Widening gap between "haves" and "have nots"

The gap between those who have and those who have not is widening. Those with low levels of literacy, education and job skills are being left behind. Canada's economic success cannot be isolated from its social success.

Chapter 4 Quality PSE

4.1 OVERVIEW

Escalating educational requirements, shifting demographic patterns and an impending shortage of skilled workers demand that PSE in Canada be of the highest quality possible to ensure the country's continued economic competitiveness and social progress.

The issue of quality assurance has come to the forefront in most developed countries because of the pervasive impacts of tertiary education and the shift from the traditional educator-centred model of delivery to a learner-centred approach that responds to individual needs throughout life.

Canadian post-secondary institutions and education ministries are fully seized of this issue's importance. It would be difficult to find an institutional or provincial strategic plan for the sector that does not emphasize the necessity of quality education. However, the many manifestations of quality are nebulous concepts open to interpretation.

While the phrase "quality post-secondary education" is often employed to describe a vision or identify goals for PSE, there is neither a consensus about what the term quality means, nor a working definition in use in Canada. Indeed, what is usually included under the rubric of quality assessment is activity measurement. Many "quality measurements" gauge various forms of academic activity—either inputs or outputs. In part, this is because it is difficult to define quality in terms of outcomes or impacts. Also, it is difficult to measure definitive outcomes.

CCL's 2006 report on PSE concluded that, at present, it is impossible to state objective, rigorous conclusions about levels of quality in PSE in Canada, since only indirect, proxy and subjective indicators exist. The report stressed the challenges this poses for learners in assessing the calibre of individual institutions, and for governments in attempting to determine returns on their PSE investments.

To provide insight into the measure of quality in PSE in Canada—and in the absence of definitive measures of quality PSE in this country—this chapter examines the following five indicators:

- expenditures on institutions per student
- ratio of students to instructors
- age profile of university educators
- non-completion of post-secondary education
- student satisfaction surveys

Measurement of quality

Many jurisdictions—both within Canada and internationally—are starting to experiment with new research tools and surveys in an attempt to collect information other than input and output activities. These tools are meant to measure the value added by a student's post-secondary education experience in terms of skill and knowledge gain. Quantification of the quality of education can occur at many levels—the program level, institutional level or system level—but each method has shortcomings.

4.2 EXPENDITURES ON INSTITUTIONS PER STUDENT

Canada's per-student expenditures on educational institutions are among the highest of all OECD countries. Although Canada's expenditures per student reported in 2003, using 2002 data, are less than those of the U.S., they are almost double the OECD mean and have experienced the highest rate of growth (33% between 2000 and 2003) among the countries shown below.

Table 4.2.1 **Annual expenditures on educational institutions per student for all services, by level of education, based on full-time equivalents, 2000, 2003**

	2000	2003
Canada	14,983	19,992 ^{1, 2}
France	8,373	10,704
Germany	10,898	11,594
Italy	8,063 ¹	8,764 ¹
Japan	10,914	11,556
United Kingdom	9,657	11,866
United States	20,358 ¹	24,074
OECD countries (Mean)	11,109	11,254

1. Public institutions only

2. Year of reference 2002

Note: Figures expressed in 2003 equivalent U.S. dollars, converted using Purchasing Power Parities for GDP

Source: OECD, *Education at a Glance*, various years.

Table source: *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program*. Council of Ministers of Education, Canada and Statistics Canada: Canadian Education Statistics Council, 2006, Catalogue No 81-582-XIE, 2006

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Quality measurement systematic review

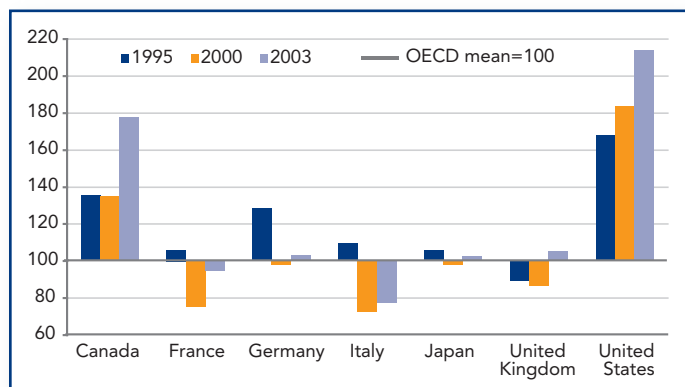
In 2006, the Canadian Council on Learning conducted a systematic review for the B.C. Ministry of Advanced Education that analyzed the research devoted to measuring quality in PSE. The survey examined 1,859 studies and included the development of a coding matrix to categorize the studies. The coding matrix, reproduced below, provides a useful summary of the indicators employed to measure quality, according to five categories distinguishing between inputs and outcomes.

CODING MATRIX				
INPUTS	OUTPUTS	FINAL OUTCOMES	MEASUREMENT TOOLS	SURVEYED POPULATION
Student <ul style="list-style-type: none"> • High school GPA <ul style="list-style-type: none"> • Demographics Faculty <ul style="list-style-type: none"> • Qualifications • Ability to attract funding • Demographics • Reputation Institution <ul style="list-style-type: none"> • Entrance criteria • Tuition and fees • Student aid • Student health plan 	Learning environment <ul style="list-style-type: none"> • Curriculum • ICT • Professor/student ratio • Degree and certificate completions • Teaching quality/access to faculty/student engagement • Student satisfaction R&D <ul style="list-style-type: none"> • Faculty publication • Research collaborations 	Graduates <ul style="list-style-type: none"> • Employment rates • Income • On-the-job competence • Post-graduate admission Institution <ul style="list-style-type: none"> • Reputation/ranking 	Direct assessment Ranking Actuarial data	Faculty Students Staff

Source: Canadian Council on Learning. "Measuring Quality in Post-secondary Education," Ottawa: 2006.

This summary illustrates the variety of indicators used and one of the basic challenges of measuring quality: the reliance on input variables, which tend to be somewhat easier than outcome variables to identify and track. The recent trend of using performance indicators to measure value for publicly funded sectors, including education, has placed more emphasis on outcome factors such as graduates, attrition rates and employment outcomes. But the problem of the high correlation between inputs and outputs still exists. The "outcomes" of institutions may have more to do with the characteristics of the students they recruit and may not be a meaningful measure of the value added by PSE. This speaks to the obvious need to gather many different types of information—both inputs and outcomes—and explore the relationships between the two.

Figure 4.2.1 **Annual expenditures on tertiary education institutions per student for all services (OECD mean=100)**



Source: OECD, *Education at a Glance*, various years

4.3 RATIO OF STUDENTS TO INSTRUCTORS

As the student-to-faculty ratio has increased significantly over the last decade, concern has arisen that this may limit faculty-student interaction and erode the post-secondary learning experience. Data from the Post-secondary Student Information System reveal that the student-to-professor ratio has increased between 1993–1994 and 2004–2005. Despite a slight decrease in the ratio of full-time students to full-time professors between 2003–2004 and 2004–2005 (from 19.8 to 19.6), the most current figure is still 26% higher than the ratio of 15.6 registered in 1993–1994.

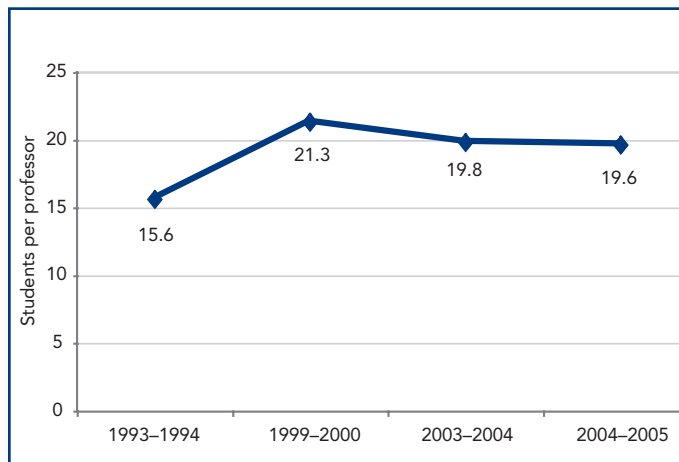
These data do not take into account the prevalent use of sessionals or part-time faculty, especially in first- and second-year courses. This type of data is essential to evaluate accurately trends in the ratio of students to instructors and the current teaching situation in higher education. Canada does not have such information available.

Table 4.3.1 **Full-time students per full-time instructor, Canada**

FULL-TIME STUDENTS PER FULL-TIME INSTRUCTOR		
STUDENTS		
1993–1994	2003–2004	2004–2005
574,320	735,600	756,987
PROFESSORS		
1993–1994	2003–2004	2004–2005
36,912	37,203	38,571
STUDENTS PER PROFESSOR		
1993–1994	2003–2004	2004–2005
15.6	19.8	19.6

Source: Statistics Canada, *Post-secondary Student Information System (PSIS)*, 2003–2004 and 2004–2005

Figure 4.3.1 **Full-time students per full-time instructor, Canada**

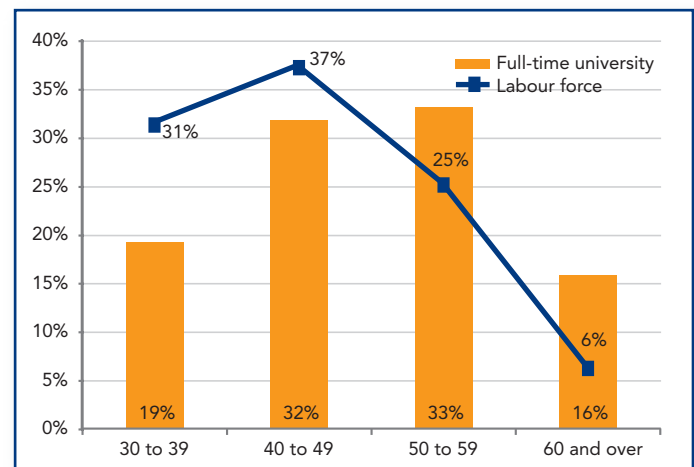


Source: Statistics Canada, *Post-secondary Student Information System (PSIS)*, 2004–2005

4.4 AGE PROFILE OF UNIVERSITY EDUCATORS

On average, university educators are older than the Canadian labour force in general. In 2004–2005, about half of full-time university educators were 50 years of age or older compared to 31% of the labour force. Mandatory retirement laws in Canada are changing, giving many professors the option of working past the age of 65. This may help alleviate the looming problem of faculty renewal. Overall, however, the aging professoriate represents a serious challenge for institutions over the next two decades.

Figure 4.4.1 **Age distribution of full-time university educators compared to that of the labour force, Canada, 2004–2005**



Source: Statistics Canada, *Labour Force Survey*, 2006 and *University and College Academic Staff System (UCASS)*, 2004–2005

Table 4.4.1 **Full-time faculty with doctorates, by age, Canada, 2004–2005**

AGE GROUPS	FULL-TIME FACULTY	FACULTY WITH DOCTORATES	PERCENTAGE OF FACULTY WITH DOCTORATES
Under 40	7,695	6,069	78.9%
40 to 54	18,471	14,538	78.7%
55 and over	12,375	9,801	79.2%

Source: *University and College Academic Staff System (UCASS)*, 2004–2005

Quality and performance measures

For the most part, jurisdictions do not report on quality indicators, but on performance or activity indicators. In many cases, they are measuring things like efficiency, diversity, affordability and contextual factors—such as student preparedness.

The unit of analysis for performance measurement varies from jurisdiction to jurisdiction. For instance, some jurisdictions—Sweden, California and Quebec—measure and report performance at only the system-wide level. Bavaria, in Germany, measures the performance of each academic unit (called a field of study) at each institution. On the other hand, overall most jurisdictions choose to monitor and report on quality at the institution level, which allows for linking measured performance to institutional funding, since the institution is also the unit of funding. However, few jurisdictions use this method extensively. Where it exists, funding based on performance indicators tends to be a marginal add-on to the system, affecting a very small portion of total grants. In none of the jurisdictions surveyed does it play a decisive role in funding.

Two Canadian jurisdictions stand out in this overview for the way in which quality measurements are collected and used. Alberta and British Columbia report data at both the institutional and system level. Alberta has 11 indicators on which it reports at an institutional level and another 20 on which it reports on a system-wide level. British Columbia's 19 indicators are used to provide reports both at the institutional and system levels.

Issues related to measuring and assessing quality are being examined in many jurisdictions as they grapple with finding adequate ways to capture this elusive and complex notion.

Attempts to measure learning on a cross-institutional basis is much more difficult. Through the 1960s and 1970s, the United States used tests such as the Undergraduate Assessment Program conducted by the Educational Testing Service (ETS) and the College Outcomes Measures Project (COMP) conducted by American College Testing (ACT). However, these were not considered to measure student development effectively. Though descendants of these tests still exist in the form of the ETS's Measure of Academic Proficiency and Progress (MAPP) test, they are not much used today.

Some of the concepts embodied in these tests are still contained in the much newer Collegiate Learning Assessment (CLA). Like its predecessors, CLA attempts to measure general cognitive skills—critical thinking, analytic reasoning, problem solving and written communication—as opposed to subject-level knowledge.

A less ambitious, though more widespread, attempt to measure institutional quality exists in the form of the National Survey of Student Engagement (NSSE). The NSSE asks students about their learning experiences at institutions, covering topics such as average frequency and duration of homework, frequency of contact with faculty or other advisors, number of books read for courses and for pleasure.

The Community College Survey on Student Engagement (CCSSE) is also used in the U.S. to assess the success of community colleges in fulfilling their mission. Like NSSE, CCSSE surveys students about behaviours and institutional practices that are highly correlated to learning. The survey is used to provide benchmarks and serves as a diagnostic tool and monitoring device among community colleges. In Canada, ACCC has launched the Pan-Canadian Study of College Students, a CCSSE-type study adjusted for Canada that attempts to measure the student experience and the key determinants of student academic success and persistence. Some results from this study were published in August 2007 as the Pan-Canadian Study of First Year College Students.

Systems for quality assessment and assurance

Quality assurance (QA) is the process of deciding if quality—however defined by agreed-upon measures—is present in a program, a faculty or an institution.

This process is first and foremost addressed by institutions themselves, through internal reviews of courses and programs to ensure that institutional standards are met.

There is also the issue of quality assurance at the institutional level. Many jurisdictions have established bodies or agencies whose role is to assure quality in systems of higher education. Some examples are outlined in the table below.

Van Vught and Westeheid¹⁷ reviewed various approaches to quality assurance adopted in Western Europe and North America, identifying four common elements in the many processes used.¹⁸

They include:

1. an agent or organization managing the quality-assessment process
2. self-evaluation by institutions
3. peer reviews and site visits
4. reporting results and experiences

International quality-assurance processes

	QUALITY-ASSURANCE BODIES	STRUCTURE	ACTIVITIES
Australia	Australian Universities Quality Agency	Independent, not-for-profit, national agency	<ul style="list-style-type: none"> • Reports publicly on audits of programs and services. • Reports on relative standards and international standing of Australian system. • Promotes best practices. • Encourages development of performance data.
New Zealand	NZ Qualifications Authority	Crown agency reporting to the Minister of Education	<ul style="list-style-type: none"> • Maintains comprehensive framework of qualifications. • Responsible for non-university institutions while vice-chancellor's committee is responsible for quality assurance in the university sector.
U.K.	Quality-Assurance Agency	Independent agency	<ul style="list-style-type: none"> • Works with institutions to define academic standards and quality. • Conducts and publishes reviews against defined standards. • Encourages continuous improvement.
U.S.	<ul style="list-style-type: none"> • Regional accreditation agencies ensure minimum standards. • Council for Higher Education Accreditation (CHEA) • Federal Department of Education 	Private, not-for-profit agencies funded by membership dues	CHEA requires that accreditors "advance academic quality, demonstrate accountability, encourage purposeful change and needed improvement, employ appropriate and fair procedures in decision-making and continually reassess accreditation practices."
EU	European Association for Quality Assurance in Higher Education (ENQA) ¹	<ul style="list-style-type: none"> • Most countries have an independent national body for quality assurance, a criterion for membership in ENQA. • Fifteen countries have peer review of the national bodies of QA. 	Varies by jurisdiction

1. The European Association for Quality Assurance in Higher Education (ENQA) focusses on the dissemination of information on quality and the promotion of best practices. ENQA has been mandated by the European Ministers of Education to develop a system of peer review for quality-assurance agencies and to develop standards, procedures and guidelines on quality assurance.

Quality assurance processes in Canada

Canada does not have a quality-assurance agency structured along the lines of those found in other jurisdictions. There is no pan-Canadian body with a mandate for quality assurance or accreditation of post-secondary institutions. Membership in the Association of Universities and Colleges of Canada (AUCC) has, for many years, served as a de facto accreditation process for degree-granting institutions, where an institution had to meet membership criteria and adhere to the Principles of Institutional Quality Assurance in Canadian Higher Education. This approach appears to have served the country well for many years, but the recent proliferation of institutions, particularly private institutions, has raised questions about the adequacy of current quality-assurance processes in Canada.

Recently, three provinces—Ontario, Alberta and British Columbia—have established quality-assurance boards or agencies to review applications from institutions that wish to offer degrees.

The Ontario Post-Secondary Education Quality Assurance Board was created to review applications to provide degrees or degree programs and/or use the term university.

Campus Alberta Quality Council is mandated to review proposals from private and public institutions wishing to offer degrees and, similar to Ontario's Board, makes recommendations to the Minister of Advanced Education and Technology. The Council has the authority to establish minimum organizational conditions and standards of program quality for the reviews it conducts.

British Columbia's Degree Quality Assessment Board reviews applications for new degree programs from all public and private institutions. Those that have been granting degrees for at least 10 years are exempt from the board's review.

The Maritime Provinces Higher Education Commission (MPHEC) has, on behalf of Atlantic Provinces, developed a policy for quality assurance. It is applied through assessment of academic programs prior to implementation and through the monitoring of institutional QA policies and procedures.

Oldford¹⁹ reviewed, in detail, the QA processes in place in Canada. She concluded that, "while the current array of quality-assurance methods for Canadian post-secondary education may be effective and valid, there are too many different approaches to be clearly communicated and well-understood by the public."²⁰

In April 2007, provincial and territorial ministers responsible for advanced education endorsed a statement on quality assurance, titled Ministerial Statement on Quality Assurance of Degree Education in Canada, that contained three elements:

- The Canadian Degree Qualifications Framework,
- Procedures and standards for new degree program quality assessment and procedures, and,
- Standards to assess new degree-granting institutions.

4.5 NON-COMPLETION OF POST-SECONDARY EDUCATION

A number of factors can affect a student's decision to abandon post-secondary studies, some of which may be unrelated to the quality of the post-secondary experience. Data that shed light on attrition from PSE are limited. Detailed and regular information on the characteristics of PSE dropouts would add valuable insight into PSE transition pathways and the factors affecting student decisions.

The recently published *Price of Knowledge*²¹ compiles a number of the reasons why students drop out of PSE. Students indicated that the top reasons for discontinuing PSE studies were: lack of interest, lack of program fit and lack of career direction.

Table 4.5.1 **Reasons for discontinuing post-secondary studies**

	CLASS OF 2003 ¹	YITS ²
Lack of interest/lack of program fit/lack of career direction	52%	32%
Financial reasons (other than desire to work)	23%	11%
Academic reasons	14%	6%
Desire to work	11%	7%

1. Class of 2003 is a study conducted by the Canada Millennium Scholarship Foundation following former students of the Class of 2003 in New Brunswick, Manitoba, Saskatchewan and Alberta.

2. YITS: Youth in Transition Survey conducted by Statistics Canada.

Source: Berger, J., A. Motte, & A. Parkin. *The Price of Knowledge 2006–2007: Chapter 2—Barriers to Post-Secondary Education*. Canada Millennium Scholarship Foundation, 2007

These findings are consistent with the Youth in Transition Survey.²² The 1999 survey examined the early post-secondary experience of youth between the ages of 18 and 20. The study found that almost one in three dropouts cited the “lack of program fit” as the major reason for abandoning PSE. By comparison, “lack of money” was identified by about one in 10 youth as a primary barrier to continuing their studies. Earlier studies, such as the 1991 School Leavers Survey²³ and its 1995 follow-up,²⁴ found that 20% of community-college students left without completing their studies, while about 18% of university students dropped out.

The Canada Millennium Scholarship Foundation study²⁵ on retention and attrition is among the most recent studies in Canada to address this topic. It found that attrition is highest between the first and second years of study, with 20% to 25% of first-year students not proceeding to second year. An additional 20% to 30% leave PSE sometime after starting second year.

Obviously, persistence in education is increasingly difficult to measure with the emergence of “stopping out”—where students suspend studies to travel, to make money or simply to take a break from school. Studies show that almost 40% of youth who left PSE between the ages of 18 and 20 had returned two years later.²⁶

The correlation between quality of education and non-completion rates is not well established. In light of high dropout rates among PSE students, further examination of the relationship would be beneficial.

4.6 STUDENT-SATISFACTION SURVEYS

Many PSIs conduct student-outcome surveys as part of their evaluation and planning processes. The surveys explore issues such as student satisfaction with the educational experience, the acquisition of skills and knowledge during studies, and the relationship between students' academic preparation and their subsequent employment.

In addition, some provinces conduct student-satisfaction surveys as part of their accountability reporting. CCL's 2006 report on PSE included examples from Ontario, Alberta and British Columbia. Results of the most recent surveys conducted by these and other provinces can be found on provincial government websites.

Although these efforts are helpful, such subjective proxy measures do not allow for definitive assessment of the quality of Canadian PSE. Canada requires more objective and direct quality indicators. However, there is no pan-Canadian approach to the definition, collection or reporting of these data. This is a significant barrier to evaluating student satisfaction across the country.

FACTORS FOR SUCCESS

If expenditures per student, as an input measure, constituted the sole assessment of quality Canada would, with the U.S., be leading the field, continuing to disburse far above the OECD mean. It is reasonable that learners enquire what the relationship may be between level of expenditure and quality of the learning experience, particularly in the light of an increasing student-faculty ratio.

Encouraging recent developments include: a CMEC statement on quality assurance, a possible Canadian degree-qualifications framework and discussions among some provinces to harmonize their processes. Some of the elements are therefore in place to enable progress toward a pan-Canadian quality assurance process.

POSITIVE DEVELOPMENTS AND TROUBLING TRENDS

The shift toward a learner-centred approach

The issue of quality assurance has come to the forefront in most developed countries because of the massification of tertiary education—the process by which PSE is made more available to the masses—and the shift in knowledge societies from an educator-centred model of provision to a learner-centred model. The essence of the learner-centred model is that high-quality PSE is offered in the modality required by the learner, and with outcomes that meet his or her career or personal needs. Momentum is also given to this model through the progressive shift of the burden to fund tertiary education from public to private—especially student—sources.

Pan-Canadian quality assurance processes

Canada is anomalous among advanced countries in possessing no national quality-assurance agency. Models for such agencies are readily available from examination of practices in unitary states (such as the U.K. and New Zealand), in federal states (such as Australia and the U.S.) and even in multinational entities (such as the European Union).

In this context, the imperative of accountability and value for money to the learner, as well as to the state, is magnified; it is further intensified by the globalization of teaching and learning demand and supply. All these trends make it increasingly difficult to set aside the demands for national quality-assurance mechanisms.

Improved understanding of learning and career pathways

Canadians may be surprised to learn about the high proportion of students who do not complete their second year of PSE studies on time, and may speculate whether quality and relevance of the PSE learning experience are the issues. What happens to these students? Where do they go? Our answers are partial at best. Given the large investments the country makes in tertiary education, it should be a high priority for Canada to follow the path of all students, so that we may know what transitions they make after leaving prematurely and so that any necessary adjustments can be made to improve the educational and career pathways for learners.

Chapter 5 Access

5.1 OVERVIEW

“All citizens must be ensured of the opportunity to access post-secondary education Learning opportunities are provided to qualified individuals with the capacity and the desire to further their education, training, and retraining; throughout their lives, including non-sequential learners.”

Council of Ministers of Education, Canada
A Report on Public Expectations of Post-secondary Education in Canada, February 1999

One measure of PSE access is the number of people who participate in post-secondary education. The expansion of both private and public PSE institutions, government support for students through loans and grants and Canada's high PSE attainment rates attest to the fact that tertiary education in Canada appears to be highly accessible. Yet, measuring PSE access exactly remains a challenging exercise.

Diverse and interrelated factors affect individuals' decisions to attend PSE. Participation and educational attainment rates are frequently used to measure the extent to which Canadians avail themselves of educational opportunities. But, these measures do not tell the whole story; they do not capture fully the real or perceived barriers that people face.

The Canadian Council on Learning's 2006 report on PSE identified affordability, flexibility and the lack of responsiveness of PSE as major difficulties for many Canadians who opt out of post-secondary education. It also revealed that some perceived barriers may not be real. For example, research indicates that misperceptions about the cost of PSE can deter some individuals. This chapter focusses on who attends PSE and the factors affecting their decisions whether to pursue their studies.

Government spending on PSE does not necessarily guarantee either better quality or equal access. However, spending does relate to the stability of the sector in terms of maintenance of infrastructure and programming and its potential to expand and improve PSE offerings.

Information is also included on the extent to which PSIs are adopting new technologies and alternative delivery methods. Technological advances such as e-learning can improve access for students, regardless of where they reside or when they choose to learn.

Last year's report cited statistics from an OECD study of e-learning in tertiary education. Additional material is available this year from a recent study on international e-learning strategies. This latest research is an improvement, but still lacks comparative indicators that can be tracked over time to measure progress. Also, in the area of Prior Learning Assessment and Recognition (PLAR) few, if any, indicators of progress are systematically collected.

5.2 BARRIERS TO PSE

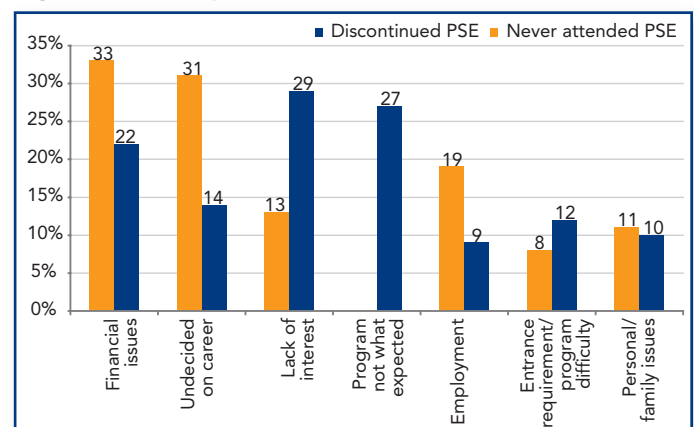
The Canada Millennium Scholarship Foundation (CMSF) has conducted extensive research on the three broad types of barriers that prevent youth from deciding to attend PSE: academic, financial and informational/motivational. The foundation concludes that the most significant barriers are informational/motivational, a category that includes: program not what expected; undecided on career; and lack of interest. These factors affect one in two people who do not attend PSE.

The CMSF survey of the Class of 2003 in four provinces gives additional insight into why some individuals do not pursue PSE. Financial barriers were cited most frequently (33%). However, factors in the informational/motivational category outnumbered financial considerations.²⁷

The Class of 2003 study²⁸ also sheds light on why some youth dropped out of PSE. The most frequently cited barriers to persistence includes: lack of interest (29%); program not what expected (27%); financial issues (22%); and undecided on career (14%). Informational/motivational factors were the dominant reasons for PSE attrition.

The reasons for deciding to attend, not attend, or discontinue PSE show a complex interplay of influences that include individual circumstances, the environment in which a person lives and family income.

Figure 5.2.1 Top barriers to PSE



Source: Berger, J., A. Motte and A. Parkin. *The Price of Knowledge: Access and Student Finance in Canada – Third Edition, Chapter 2, Barriers to Post-Secondary Education*. Canada Millennium Scholarship Foundation (Montreal: 2007). p. 7

PART I REPORTING PERFORMANCE AND PROGRESS OF PSE IN CANADA

5.3 PSE ATTAINMENT

As shown in Chapter 1, Skilled and Adaptable Workforce, Canada has one of the highest educational attainment rates in the world. A significant factor contributing to this high educational achievement is the strength and reach of the community-college system across the country. Internationally, Canada ranks second in college/vocational attainment (22%) compared with 9% in the U.S. and Australia, 16% in Israel and 17% in Japan.

Canada's ranking for educational attainment in academic university/research programs is lower, tied with Australia in fifth place at 22%. The U.S. ranks first for university attainment at 30% of the working-age population.

Table 5.3.1 PSE attainment of working-age population, 2004

COUNTRY	PSE (ANY TYPE) ¹	COUNTRY	ACADEMIC/ UNIVERSITY/RE-SEARCH PROGRAMS	COUNTRY	COLLEGE/ VOCATIONAL PROGRAMS
Russian Federation*	55%	U.S.	30%	Russian Federation*	34%
Israel	45%	Norway	29%	Canada	22%
Canada	45%	Israel	29%	Japan*	17%
U.S.	39%	Denmark	25%	Finland	17%
Japan*	38%	Canada	22%	Israel	16%
Sweden	35%	Australia	22%	Sweden	15%
Finland	34%	Russian Federation*	21%	U.S.	9%
Denmark	32%	Japan*	21%	Australia	9%
Norway	32%	Sweden	19%	Denmark	7%
Australia	31%	Finland	17%	Norway	2%

1. The OECD uses attainment of 'tertiary' education, which includes academic/ university programs and vocational post-secondary programs, such as colleges.

* Reference year, 2003

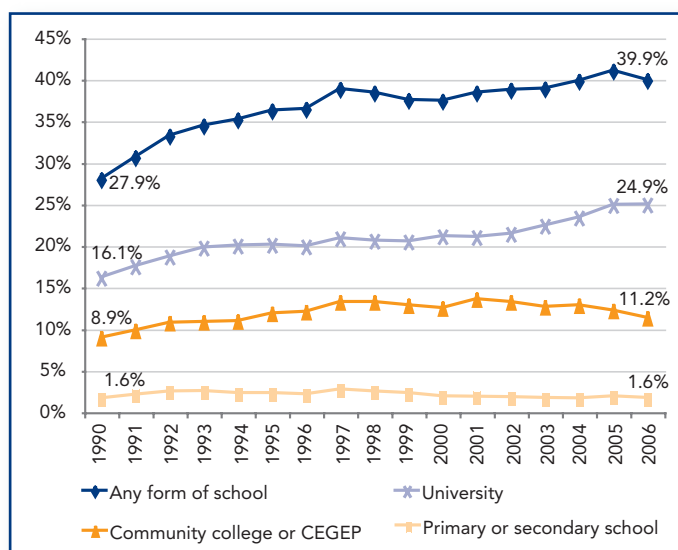
Note: Percentages might not add up due to rounding

Source: Canadian Council on Learning, 2007. *The Composite Learning Index* and OECD, *Education at a Glance*, 2006

5.4 EDUCATIONAL PARTICIPATION OF YOUNG PEOPLE

Canadian youth increasingly recognize the importance of post-secondary education and are advancing to higher education in record numbers. Between 1990 and 2005, the participation rate of young people in any type of schooling increased from 28% to 41%. In 2006, this rate decreased to 39.9%, one of the few times Canada's educational participation rate decreased on a year-to-year basis. A drop in the percentage of individuals attending community colleges or CEGEP over the last two years appears to have contributed to this decline. The university participation rate remained stable from 2005 to 2006.

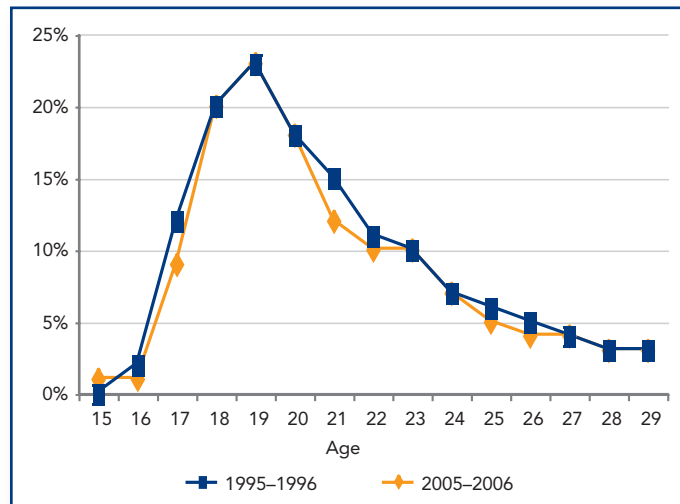
Figure 5.4.1 Educational attendance, 20- to 24-year-olds, Canada, 1990–2006



Source: Statistics Canada, *Labour Force Survey*, 2006.

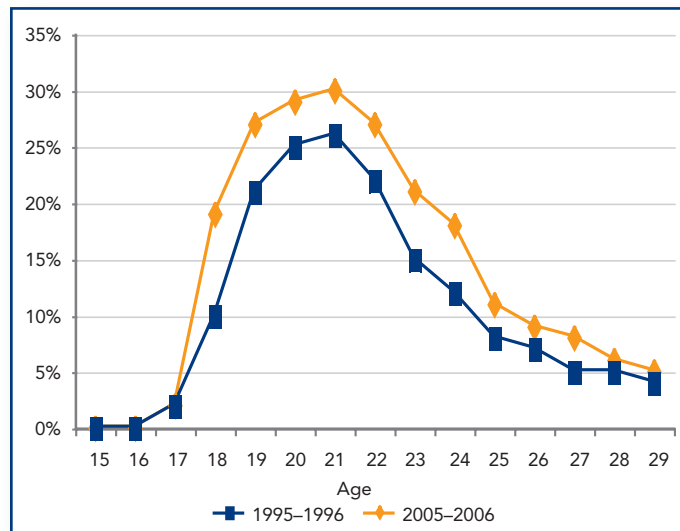
The following two charts (figures 5.4.2 and 5.4.3) present participation rates for colleges and universities by age. Comparing the age distribution for 1995–1996 to that for 2005–2006, there appear to be some shifts in the college numbers, with decreases in participation rates for the age groups 16–18 and 20–23. University participation rates increased for all age categories for the two points of time compared in these data.

Figure 5.4.2 **Participation rate at the college level, Canada, 1995–1996 and 2005–2006**



Source: Statistics Canada, *Labour Force Survey*, 2006. Custom tabulations

Figure 5.4.3 **Participation rate at the university level, Canada, 1995–1996 and 2005–2006**



Source: Statistics Canada, *Labour Force Survey*, 2006. Custom tabulations

When the participation of Canadian young people in post-secondary education is compared to youth participation rates in other jurisdictions, Canadian rates are well above the OECD average. International comparisons of youth participation in PSE are difficult because educational structures and practices differ significantly from country to country, therefore, the numbers can be misleading.

Youth in Canada attend and often complete PSE at earlier ages than in some European countries. However, it is necessary to review participation rates of the 20- to 24-year-olds who are no longer in education—but who have either completed or have some post-secondary education—to make meaningful international comparisons. Table 5.4.1 shows that Canada's 20- to 24-year-old participation rate

in education ranks sixth, behind that of Denmark, Finland, Luxembourg, Poland and France. This measure indicates Canadian youth do participate in, but do not necessarily complete PSE.

Table 5.4.1 **Distribution of 20- to 24-year-olds, by educational situation, 2004**

OECD COUNTRIES	NOT IN EDUCATION, WITH TERTIARY EDUCATION (%)	IN EDUCATION (%)	TOTAL (%)
Denmark	2.1	61.8	63.9
Finland ¹	2.8	59.6	62.4
Luxembourg ⁴	4.3	57.9	62.2
Poland	0.9	57.5	58.4
France ²	11.6	45.2	56.8
Canada	16.6	40	56.6
Netherlands	8.7	46.3	54.9
Belgium	15.2	37	52.2
Ireland	16.9	34.6	51.5
Australia	13.7	37.7	51.4
Spain	11.7	38.7	50.4
Country Mean *	7.3	42.2	49.5
United States	12.9	35.2	48.1
Germany	3.3	44.6	48
Hungary	4	43.8	47.8
United Kingdom	14.5	31.2	45.7
Norway	4	40.8	44.8
Sweden	2.2	42.3	44.5
Portugal	5.3	38.7	43.9
Greece	6.6	36.7	43.3
Italy ³	1.5	40.7	42.1
Switzerland	4.4	37.2	41.6
Czech Republic	2.8	32.3	35.1
Austria ²	2.6	30.3	32.9
Slovak Republic	4.3	27.5	31.8

Note: Observations with missing values for level of education or educational attendance status have been excluded from the calculations.

1. Finland's data for previous years are not comparable due to survey changes.
2. Data for France and Austria may not be fully comparable between 2002 and 2004 due to survey changes. In France there were changes related to age measurement and questions on continuing studies, in particular.
3. For Italy, 2004 is the first year using the European labour force survey.
4. Luxembourg data show a fair amount of variability over time in the counts underlying these indicators.

Source: OECD INES-Network B, *Transition database*, 2006

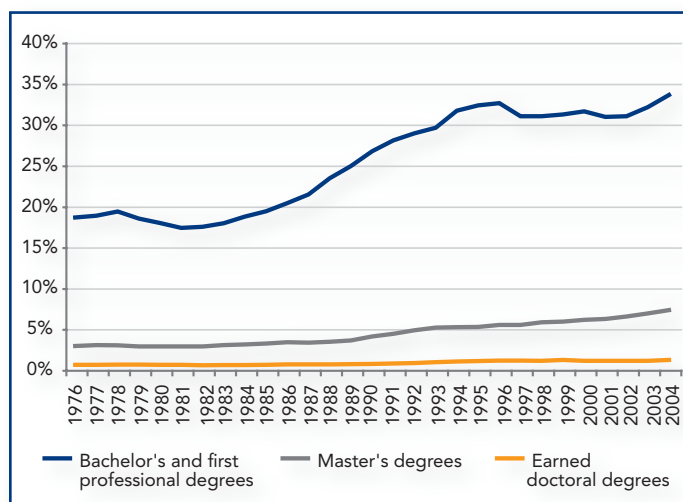
PART I REPORTING PERFORMANCE AND PROGRESS OF PSE IN CANADA

5.5 GRADUATION RATES

Graduation rates are defined as the total number of graduates divided by the population at typical age of graduation. The graduation rate for bachelor's and first degrees increased from 1990 to 1996, when it declined and then levelled off. The rate climbed again in 2002 and continued to increase to 2004. This is a positive trend that shows the increasing proportion of Canadians with a degree.

Since 1976, the percentage of the population that received bachelor's or first professional degrees has increased from approximately 18% to about 33%—almost doubling in 28 years (see Figure 5.5.1). The graduation rate for master's degrees has trended upward over the same period and the rate for earned doctorates has increased marginally.

Figure 5.5.1 **Graduation rates for university degrees, Canada, 1976–2004**



Source: Statistics Canada Post-secondary Student Information System (PSIS), 2004

5.6 PUBLIC EXPENDITURES ON EDUCATION, HEALTH, SOCIAL SERVICES AND NON-SOCIAL PROGRAMS

Public program expenditures on education are often regarded as a measure of the priority a government places on education and, therefore, are closely linked to access. This issue is also discussed in the chapter on affordable and sustainable PSE.

There was concern during the economic downturn of the 1990s—when the public sector cut programs to curb debt accumulation and control spending—that public expenditures on education might erode. This unease was heightened by concern that, in the competition for limited public funds, post-secondary education might not fare as well as other sectors, such as the health-care sector, that were more demand-driven.

In Canada, public expenditures on PSE remained stable for most of the 1990s, growing slightly from 5.3% to 5.5% of total expenditures on education, health, social and non-social programs. Near the end of the decade and into 2000, the expenditure percentage began to trend upward, reaching 6.4% in 2005 and 6.5% in 2006. However, the numbers illustrate some volatility in these percentages, with decreases and increases over the last seven years (see Table 5.6.1).

Table 5.6.1 **Public expenditures¹ on education, health, social services, and non-social programs,³ Canada, 1990–2006 (in 2001 constant dollars)**

	ELEMENTARY, SECONDARY EDUCATION	POST-SECONDARY EDUCATION	OTHER EDUCATION ²	EDUCATION TOTAL	TOTAL EXPENDITURES
EXPENDITURES IN MILLIONS OF 2001 CONSTANT DOLLARS					
1989–1990	31,707	19,963	2,402	54,071	375,497
1990–1991	33,471	20,893	2,496	56,860	390,652
1991–1992	36,502	22,156	2,815	61,472	414,526
1992–1993	37,998	22,888	3,360	64,246	418,704
1993–1994	37,941	22,906	3,278	64,126	420,968
1994–1995	38,158	22,642	3,773	64,573	417,711
1995–1996	36,967	22,726	3,519	63,213	418,772
1996–1997	36,217	21,564	2,829	60,610	403,070
1997–1998	35,941	22,037	3,112	61,091	400,074
1998–1999	35,551	23,395	3,808	62,754	407,298
1999–2000	36,664	24,169	4,311	65,145	435,405
2000–2001	36,635	25,352	4,231	66,218	437,783
2001–2002	36,410	23,537	4,139	64,518	439,485
2002–2003	36,759	25,778	4,236	66,773	431,988
2003–2004	37,407	25,998	4,494	67,900	440,578
2004–2005	40,034	29,826	4,705	74,564	463,462
2005–2006	40,436	30,603	4,636	75,676	470,921
PERCENTAGE DISTRIBUTION OF EXPENDITURES BY PROGRAM					
1989–1990	8.4%	5.3%	0.6%	14.4%	100%
1990–1991	8.6%	5.3%	0.6%	14.6%	100%
1991–1992	8.8%	5.3%	0.7%	14.8%	100%
1992–1993	9.1%	5.5%	0.8%	15.3%	100%
1993–1994	9.0%	5.4%	0.8%	15.2%	100%
1994–1995	9.1%	5.4%	0.9%	15.5%	100%
1995–1996	8.8%	5.4%	0.8%	15.1%	100%
1996–1997	9.0%	5.3%	0.7%	15.0%	100%
1997–1998	9.0%	5.5%	0.8%	15.3%	100%
1998–1999	8.7%	5.7%	0.9%	15.4%	100%
1999–2000	8.4%	5.6%	1.0%	15.0%	100%
2000–2001	8.4%	5.8%	1.0%	15.1%	100%
2001–2002	8.3%	5.4%	0.9%	14.7%	100%
2002–2003	8.5%	6.0%	1.0%	15.5%	100%
2003–2004	8.5%	5.9%	1.0%	15.4%	100%
2004–2005	8.6%	6.4%	1.0%	16.1%	100%
2005–2006	8.6%	6.5%	1.0%	16.1%	100%

1. Includes expenditures by the federal, provincial, territorial and local levels of government.

2. *Other education*: covers outlays that either overlap or cannot be allocated to the other sub-functions. It includes the general administration expenses of departments of education, the costs of statistical and research activities pertaining to education and the expenses of apprenticeship training. Payments made by one government to another or to the private sector to encourage proficiency in the official languages are also included, as are costs of special instructional arrangements such as evening classes and correspondence courses. Expenditures of ancillary enterprises of colleges and universities, e.g., bookstores and cafeterias, are included.

3. *Non-social services* comprise: General government services, Protection of persons and property, Transportation and Communication, Resource conservation and industrial development, Environment, Recreation and culture, Labour, employment and immigration, Housing, Foreign affairs and international assistance, Regional planning and development, Research establishments, General-purpose transfers to other government sub-sectors, Debt charges, and Other expenditures.

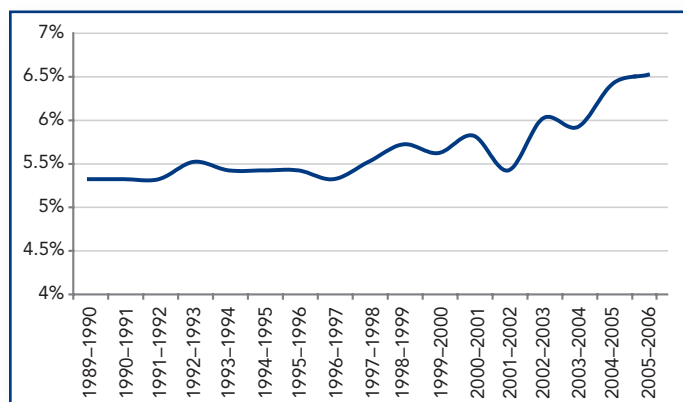
Note: in the publication *Pan-Canadian Education Indicators Program*, the category of 'Special Retraining Services' is grouped with 'Other Education'

Data source: Public Institutions Division, Statistics Canada

Table source: *Education indicators in Canada: Report of the Pan-Canadian Education Indicators Program*. Council of Ministers of Education, Canada and Statistics Canada Catalogue No 81-582-XIE, updated Dec. 1, 2006

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Figure 5.6.1 **Percentage of public expenditures on PSE, Canada, 1990–2006**

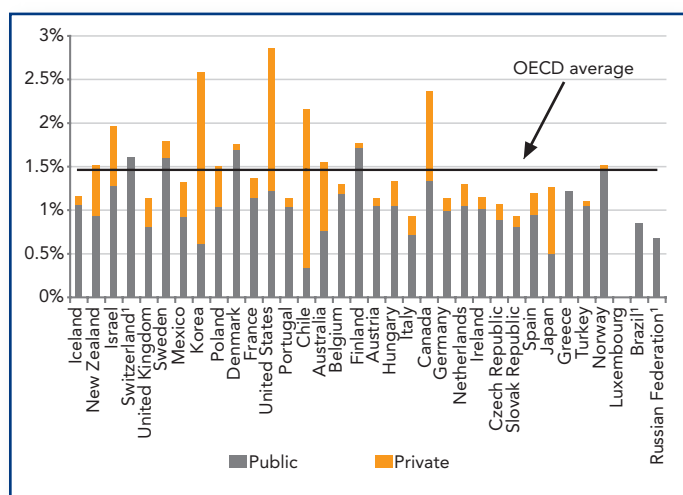


Data sources: Public Institutions Division, Statistics Canada.
Figure source: Statistics Canada and Council of Ministers of Education, Canada. *Education indicators in Canada: Report of the Pan-Canadian Education Indicators Program*, Catalogue No. 81-582-XIE. (Ottawa: Updated December 1, 2006)

5.7 PUBLIC- AND PRIVATE-EDUCATION SPENDING FOR INSTITUTIONS

Historically, Canada has been a leader among OECD countries in terms of public and private investment in education and training as a percentage of GDP. The latest data (2003) show that Canada ranks third in investment in education, behind the U.S. and Korea (see Figure 5.7.1).

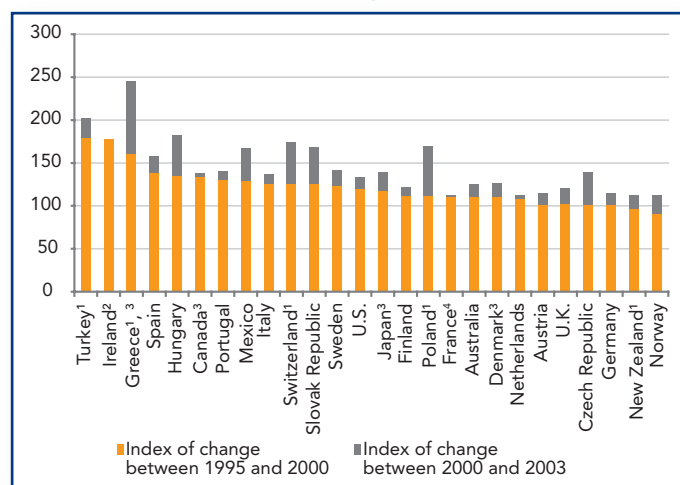
Figure 5.7.1 **Expenditure on post-secondary educational institutions as a percentage of GDP, 2003**



1. Public expenditure only.
Note: Countries are ranked in descending order of expenditure from both public and private sources on educational institutions in primary, secondary and post-secondary non-tertiary education.
Source: OECD, *Education at a Glance*, Table B2.1b, 2006

that between 2000 and 2003 Canada's rate of growth in investment was significantly lower than between 1995 and 2000. Thirteen OECD countries had higher rates of change in expenditures than Canada between 1995 and 2003.

Figure 5.7.2 **Change in expenditure on educational institutions between 1995 and 2003 for tertiary education, 1995=100 (2003 constant prices)**



1. Public expenditure only.
2. Expenditure on educational institutions decreased by 15 percentage points between 2000 and 2003.
3. The post-secondary non-tertiary²⁹ level of education is included within the tertiary education category.
4. Data refer to 1995–2002

Note: Countries are ranked in descending order of change between 1995 and 2000 in total expenditure from both public and private sources on educational institutions.

Source: OECD, *Education at a Glance*, Table B2.3, 2006

5.8 DEMOGRAPHIC TRENDS AND INSTITUTIONAL CAPACITY

Demographic changes in Canada have often had a dramatic effect on educational policy and programming. Following the Baby Boom generation and the smaller Bust generation, many of those born in the larger Echo Boom generation between 1980 and 1995 are now making their way through the educational systems—in some regions creating considerable pressure on institutional capacity.

A study was conducted by Statistics Canada in the summer of 2007 to estimate the future population of students in post-secondary institutions in Canada. The purpose was to identify expected patterns of future enrolments and to provide useful information to help decision-makers plan future strategies for PSE in the context of anticipated trends.

Three scenarios from this work are presented below, based on a series of underlying assumptions that include medium levels of fertility, mortality, immigration and inter-provincial migration. Due to data limitations, the scenarios do not include the territories.

Scenario 1: Projection of past trends and participation rates

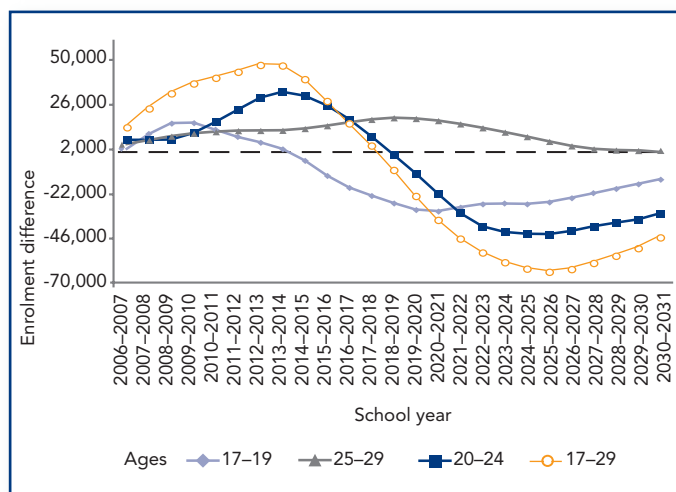
Scenario 1 (see Figure 5.8.1) is built on determination of the average level of college and university enrolment between 2003 and 2006 and the corresponding participation rates. Enrolments have been projected to 2030–2031 using these participation rates as a constant over the projection time frame. The absolute differences have been calculated between the 2003–2006 enrolment average and the projected enrolment levels to 2030–2031, for Canada and for each individual province. As the last three years of observed enrolment are affected by the Ontario double cohort phenomenon, a specific correction has been made in the Ontario figures, and also in the Canada figures, because of the relative size of Ontario in the Canada totals.

The graph below shows the absolute difference in full-time enrolment between the average for the last three years (2003–2006) and projections to 2030–2031 for Canada as a whole. Enrolments are expected to peak in Canada around 2012–2013 and decline steadily until 2025–2026 when they will start to rise gradually. There will, of course, be differences in the individual provinces. The Atlantic provinces are projected to experience decreases in population earlier than the Canadian average because of the age structure of the population. The Western provinces can anticipate an enrolment decline several years later than the Canadian average because their population is younger. Ontario, which has greater levels of immigration and in-migration, will face a much more modest decline in enrolments.

Scenario 2: Linear projection of participation rates

Predicted participation rates and predicted enrolment have been calculated using a linear trend of past enrolment patterns to determine projections to 2016–2017 (see Figure 5.8.2). For participation rates, the past linear trend in participation rates has been projected to 2016–2017. For projected enrolment, past linear trends in participation rates have been multiplied by the projected population for Canada as a whole. After 2016–2017 the participation rates have been held constant.

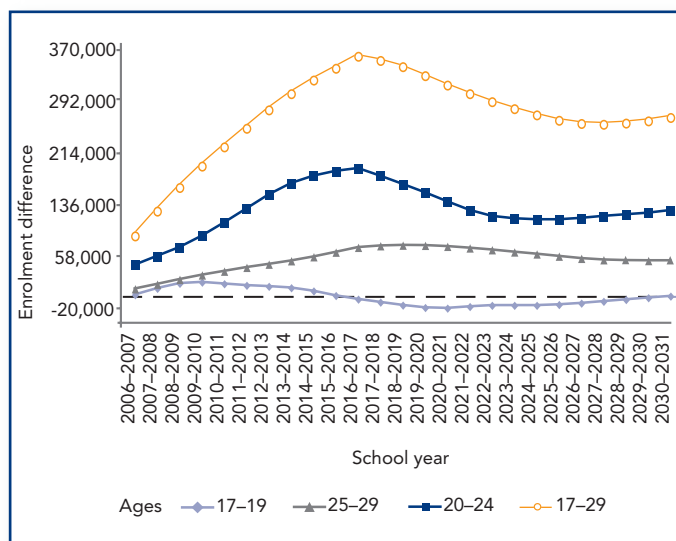
Figure 5.8.1 **PSE enrolment difference between the 2003–2006 average and the Scenario 1 projection, full-time, Canada**



* Enrolment difference = (Scenario 1 projection) minus (2003–2006 average enrolment)

Note: Dotted line at 0 indicates no difference from the 2003–2006 average

Figure 5.8.2 **PSE enrolment difference between the 2003–2006 average and the Scenario 2 projection, full-time, Canada**



* Enrolment difference = (Scenario 2 projection) minus (2003–2006 average enrolment)

Notes: Dotted line at 0 indicates no difference from the 2003–2006 average. The linear trend established between 1990–1991 and 2005–2006 is carried forward to 2016–2017. The participation rate is then held constant to 2030–2031.

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Scenario 3: Dispensing with the male lag: female participation rates applied to male enrolments

In this scenario, female participation rates were applied to male enrolment figures. Female participation is consistently higher for university enrolment, especially among 17- to 24-year-olds. A reasonable goal for PSE in Canada would be to improve access and participation by male students, who currently represent only 39% of first-degree graduates from Canadian universities. Addressing these barriers for this large group will provide for more and ongoing demand for PSE.

In the oldest age group, the gender participation rates are more comparable, likely a result of a greater number of males in graduate programs. In contrast, there is much greater parity for college enrolment, nationally and provincially. The exception is Quebec, which sees a substantially higher female participation rate in the youngest age group. This is likely a result of the CEGEP system acting as a springboard to university programs for Quebec youth.

When applying female participation rates to male enrolment figures (see column five of the following tables), a much higher enrolment level for males is found, particularly for university full-time enrolment. To make the material in the following tables more understandable, it is informative to work through an example using the situation for university enrolment at the national level. For instance, for 17- to 29-year-olds, there were on average 428,357 females enrolled in university between 2003 and 2006, while for the same period there were 331,646 males in this age group. However, if males were given the higher participation rate of females, there would be 445,585 males enrolled in university in 2003 to 2006: a difference of 113,940 from the original male enrolment level. Looking to the future, (the five columns on the right of the tables) the number of added males in university would be more than 118,000 in 2010–2011 and 2015–2016, but would fall to around 110,000 in 2025–2026 and 2030–2031.

Table 5.8.1 Scenario 3 results for universities and colleges

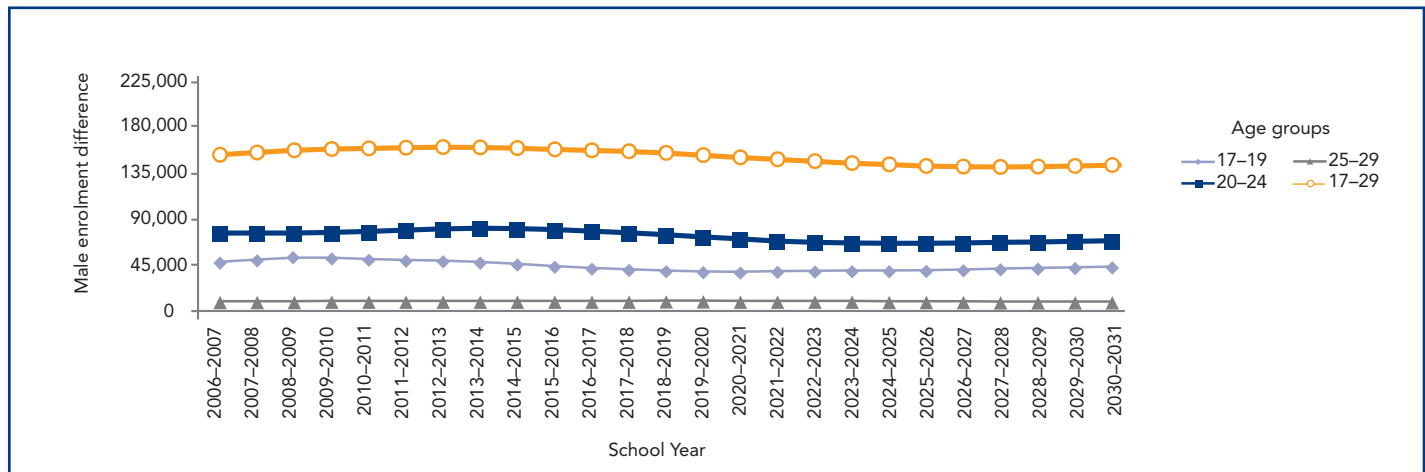
UNIVERSITY, FULL-TIME, CANADA											
AGE GROUPS	PARTICIPATION RATES (2003–2006 AVERAGE)		ENROLMENT (2003–2006 AVERAGE)		MALE ENROLMENT GIVEN FEMALE PARTICIPATION RATE	DIFFERENCE BETWEEN MALE ENROLMENT OBSERVED WITH FEMALE PARTICIPATION RATE (2003–2006 AVERAGE)	PROJECTED DIFFERENCE BETWEEN MALE ENROLMENT GIVEN MALE PARTICIPATION RATE AND MALE ENROLMENT GIVEN FEMALE PARTICIPATION RATE (FEMALE - MALE)				
	Female	Male	Female	Male			2010–2011	2015–2016	2020–2021	2025–2026	2030–2031
17–29	15.33%	11.41%	428,357	331,646	445,585	113,940	118,560	118,125	114,448	110,562	110,911
17–19	15.19%	9.83%	95,361	64,985	100,419	35,434	36,587	34,248	32,396	32,937	34,100
20–24	25.11%	18.18%	273,862	207,615	286,756	79,140	80,821	81,850	76,535	74,051	75,443
25–29	5.42%	5.43%	58,301	59,974	59,827	-148	-157	-160	-162	-152	-148

COLLEGE, FULL-TIME, CANADA											
AGE GROUPS	PARTICIPATION RATES (2003–2006 AVERAGE)		ENROLMENT (2003–2006 AVERAGE)		MALE ENROLMENT GIVEN FEMALE PARTICIPATION RATE	DIFFERENCE BETWEEN MALE ENROLMENT OBSERVED WITH FEMALE PARTICIPATION RATE (2003–2006 AVERAGE)	PROJECTED DIFFERENCE BETWEEN MALE ENROLMENT GIVEN MALE PARTICIPATION RATE AND MALE ENROLMENT GIVEN FEMALE PARTICIPATION RATE (FEMALE - MALE)				
	Female	Male	Female	Male			2010–2011	2015–2016	2020–2021	2025–2026	2030–2031
17–29	9.21%	8.00%	257,350	232,530	267,672	35,142	36,569	36,435	35,301	34,102	34,210
17–19	18.26%	14.31%	114,638	94,612	120,723	26,111	26,961	25,236	23,872	24,271	25,128
20–24	10.50%	9.90%	114,544	113,070	119,946	6,876	7,023	7,112	6,650	6,434	6,555
25–29	2.62%	2.23%	28,161	24,629	28,893	4,264	4,541	4,610	4,677	4,394	4,267

Notes:

1. In the university table, participation rates at the Canada level are corrected for the double cohort in Ontario.
2. The total figures for the 17–29 age group differ from the summation of the three individual age groups because the total was calculated independently.
3. Enrolment figures are based on Labour Force Survey participation rates applied to population figures.

Figure 5.8.3: **Male enrolment difference between the 2003–2006 average and the Scenario 3 projection, full-time, Canada**



* Male enrolment difference = (Enrolment projected for males using female participation rates) minus (Enrolment projected for males using male participation rates)
 Note: Participation rates use the average of the rates observed between 2003 and 2006

The projections for all scenarios have implications for many aspects of the delivery of post-secondary education, not the least of which is demand for institutional capacity. In Scenario 1, which is based on projected average participation rates from 2003–2006, the pressure exerted on PSIs by children of the boomer generation will peak in most provinces in 2012–2013 and then enrolment may drop as youth cohorts decline. Enrolment levels may be sustained by other sources—increases in numbers of part-time students or increases in the participation of non-traditional learners, such as members of under-represented groups. This demographic phenomenon would likely translate into easier access to PSE because of lower student demand. However, scenarios 2 and 3—which sustain demand for PSE and, therefore, pressure on PSI capacity—are more desirable situations for Canada, as they would result in a more highly educated population.

5.9 NEW DELIVERY APPROACHES—E-LEARNING INITIATIVES

Technology has the potential to change the nature of how individuals engage in learning. Early literature about the internet was optimistic about the speed and intensity with which it would affect learning methods and the post-secondary environment. E-learning was heralded as a way to make educational offerings more widely available in dynamic formats and geared to individual learning needs and abilities.

To assess the impact of e-learning on instruction, curriculum development and enrolments in the tertiary sector, the OECD Centre for Education Research and Innovation

(CERI)³⁰ undertook a survey of practices in 19 tertiary educational institutions from 13 countries. This supplemented a 2004 survey of online learning conducted by the Observatory on Borderless Higher Education.

The CERI findings³¹ indicate that e-learning activities are diverse across institutions, ranging from online components for courses to web-dependent courses where students are required to use the internet for key elements of their program and to complete online courses. The survey found limited provision of courses with a high level of on-line presence (well under 5% of total enrolment) at most campus-based institutions. Students have incorporated the internet with enthusiasm into their day-to-day learning activities (research, scheduling, report preparation and project development). But the growth of e-learning does not appear to have challenged the fundamental way that institutions organize or deliver learning. The report states that, “e-learning has not really revolutionized learning and teaching to date. Far-reaching novel ways of teaching and learning, facilitated by [information communications technology], remain nascent or still to be invented.”³²

Canada was considered a pioneer in this area, but the OECD’s CERI study suggests Canada has been somewhat slower than many other countries to incorporate significant online components into programs. It also has a lower proportion of web-dependent courses than other countries. On the other hand, the proportion of courses conducted online in Canada is one of the highest among countries studied, perhaps reflecting Canada’s long history of providing distance education, a sector that has adopted online technology with enthusiasm.

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Table 5.9.1 **What estimated proportion (percentage) of current programs/courses offered by your institution has the following kinds of online components?**

2004	NONE OR TRIVIAL (%)	MODEST (%)	SIGNIFICANT (%)	WEB DEPENDENT (%)	CONDUCTED ONLINE (%)
U.K.	41	34.8	15.5	5.8	2.8
Canada	43.4	32	14.5	3.7	6.4
Australia	36.5	29	18.4	11.7	4.5
South Africa	52.5	32.5	7.4	4.7	2.9
Asia Pacific	33.4	31.8	21.8	9.5	3.5

Note: Web dependent is defined as students being required to use the internet for key, active elements of the program: online discussion, assessment, etc.

Source: Adapted from OECD, *E-Learning in Tertiary Education: Where Do We Stand?* Table 1.2, 2005.

A recent study³³ analyzed and compared major international initiatives in the field of e-learning to suggest possible approaches for a Canadian e-learning strategy. The following points highlight their key findings:

- E-strategies and action plans in most countries are government initiated, except in the United States where e-learning is mostly driven by private, not-for-profit initiatives.
- E-learning strategies and programs embrace a wide scope of activities and stakeholders.
- There is substantial public funding for e-learning.
- Jurisdictional competencies and cultural diversity do not appear to be constraints to collaboration.
- E-learning and knowledge management are seen as economic levers in the new economy.
- Research is a fundamental part of an e-learning strategy.
- Training and awareness are essential components of an e-learning strategy.

In July 2005, the Canadian Council on Learning held a workshop for active stakeholders and members of the Canadian e-learning community. The workshop reviewed the situation across the country regarding the use and implementation of e-learning. Its findings emphasized that Canada needs a strategic planning framework for e-learning and funding support, a co-ordinating body and more effective linkages among stakeholders and members.

While Canada was a leader in the early years of e-learning initiatives and achievements, the country can no longer claim that role. The lack of co-ordination around an e-learning strategy, together with inadequate funding, has caused Canada to fall behind other countries. Canada's early action in research and pilot projects has not translated into implementation of a co-ordinated e-learning strategy.

CCL is currently preparing a report to inform decision-makers, practitioners, providers and learners of the state of e-learning in Canada. Based on interviews, a review of provincial, territorial and federal policy documents, survey data and illustrative case studies, the report will be released in 2008. It will help Canada develop a better understanding of the current e-learning environment and recommend how the full potential of e-learning can be realized in the country.

5.10 CREDIT TRANSFER

Increasingly, learners pursue their post-secondary studies by accessing learning opportunities at more than one post-secondary institution. Indeed, significant numbers of learners transfer between universities or between universities and colleges, during or upon completion of their educational program.

To the extent that credits earned by transfer students are relevant to their new course of studies, individuals need to be assured that prior learning and credits earned will be recognized and accepted by their host institutions.

A proper protocol or mechanism to recognize previous academic performance is essential to ensure a full range of student mobility options. Given the fluidity of the post-secondary education system, credit-transfer systems are a vital element to support students along educational pathways and enable movement between programs and institutions. Credit-transfer systems can eliminate unnecessary student tuition and educational costs (mitigating borrowing for some students) and reduce post-secondary non-completion rates. Reducing barriers to student mobility should also help promote lifelong learning and increase participation rates.

The ease and availability of credit transfer is important not just to the student, but also to governments and post-secondary institutions. For institutions, credit transferability is a key issue given quality-assurance arrangements within the post-secondary education sector. For governments, credit recognition is an important issue because an improved credit-transfer system could result in net savings if more students were able to complete their studies in a timely manner. It would also increase a student's ability to study any subject, anywhere, at any time.

Canada currently does not have a pan-Canadian system for credit transfer. First- and second-year university credits are transferable among nearly all Canadian post-secondary institutions as a result of the Council of Ministers of Education's Protocol on Credit Transfer (1995). The remaining post-secondary students do not enjoy universal credit transfer benefits.

Attachment 2 to Part IV of this report includes a summary of credit-transfer approaches in some international

jurisdictions. Many of these countries have either established or are in the process of developing policies for national credit-transfer arrangements.

Various models demonstrate the different credit-transfer approaches. In Australia, a university-led initiative has resulted in an agreement for credit transfer among a group of institutions. England has regional articulation agreements. Scotland and Wales have systems of full credit transfer within their borders. The European Union has a well-defined credit-transfer system designed to support their Erasmus program, which promotes and facilitates study outside the student's country of residence. The United States has a decentralized approach that differs from state to state.

In Canada, the Pan-Canadian Consortium on Admissions and Transfers has recently emerged. Following an inaugural meeting in June 2006, the consortium drafted terms of reference, including "to facilitate the implementation of policies and practices that support student mobility both within and among provinces and territories and granting of transfer credit in order to improve access to post-secondary education in Canada." As this initiative evolves, it may provide more commonality in transfer policies and practices across the country. This would be a welcome initiative given the lack of a pan-Canadian approach to credit transfer.

5.11 PRIOR LEARNING ASSESSMENT AND RECOGNITION (PLAR)

Recognition of prior learning gives credit where it is due, acknowledging the full range of skills and knowledge individuals gain over the course of their lives. It is based on the premise that learning can occur in many settings: at school, in the workplace, through life experiences—volunteering—or in another country.

Prior learning assessment and recognition, or PLAR, involves the identification, documentation, assessment and recognition of previously acquired knowledge. In circumstances where knowledge and training are not

clear from formal credentials, assessment of prior learning through a variety of tools can help learners gain admission, avoid duplication and prepare to write examinations for professional designation.

All provinces have moved to recognize prior learning, but there are few standards and little coordination across the country. In 2001, colleges adopted a pan-Canadian protocol on mobility and transferability to maximize the recognition and transfer of learning acquired through formal education, workplace training and life experience. Many provinces have adopted policies to "encourage the practice of reviewing, evaluating and acknowledging the information, skills, and understanding that adult learners have gained through experiential or informal or non-formal learning, rather than through formal education."³⁴

As a starting point for further investigation, the Council of Ministers of Education, Canada (CMEC) has compiled an inventory of existing PLAR policies, practices and programs in Canada's post-secondary institutions. A substantial body of research regarding current initiatives and best practices is forming, but there have been limited initiatives to coordinate efforts across the country and to develop a common framework for use by all provinces and territories. Mechanisms to measure progress for use by all jurisdictions have yet to be developed.

CCL has undertaken a PLAR Framework Project designed to outline the evolution and current availability of PLAR policies and practices in Canada—both at a general level and for specific areas such as apprenticeship and literacy. The work will also include information on regions and sectors. In addition to providing a review of findings from evaluation studies and relevant models from the international literature, the project will include a compilation of learner case studies. The final report from the project will summarize themes, issues and challenges and present options and recommendations for new directions in the application of PLAR in Canada.

FACTORS FOR SUCCESS

It is a testament to the high priority the public and its governments place on education in Canada that—despite recessions, debt and deficit crises, and the health-care budgetary behemoth—public expenditures on PSE as a proportion of overall social spending have remained stable during the 1990s and have increased afterwards. Similarly, public and private education spending for institutions in Canada remains among the most elevated in the world.

Canada's continuing high attainment rates for PSE overall are possible largely because of the strength and reach of the country's system of community colleges. This system is a model for many countries that aspire to augment rapidly their capacity in PSE and the impact of tertiary education in their labour forces.

POSITIVE DEVELOPMENTS AND TROUBLING TRENDS

The congruity of quality and access

Quality and access go hand in hand. Quality of the learning and educational experience must be maintained at a high level at the same time as opportunities to pursue PSE studies are afforded to qualified individuals.

It is important to examine why access to and participation in tertiary education do not imply completion of that education, with all the individual and societal benefits that ensue. The rate of attrition from our PSIs is high, reaching 25% at the end of the first year and approximating 30% in the subsequent years. This makes it all the more troubling that we have not put in place any ongoing system to track what happens to these young people and to the public investment in their tertiary education.

Balancing supply and demand

One of the perennial questions for learners is, 'Will there be a space for me in university or college?' This issue is equally of concern to parents. The fact that Canada has no countrywide assessment of student demand and required capacity, or any means of matching demand and supply across the country, will not provide assurances.

This report outlines three possible scenarios to determine future enrolment. However, many other divergent scenarios are possible and they raise two essential questions: Is Canada preparing collectively for any or all of these possibilities? Which option would we prefer, and can we take action to yield that result? Unfortunately, the answer to these questions is that we have no collective analysis or plan.

Among the three scenarios presented, the first projection suggests that the pressures that PSIs are experiencing now will peak in most provinces in 2012–2013 and then start to abate in subsequent years as youth cohorts decline. This projection is the least desirable. Although it may present the superficial advantage of diminished costs for education, it would also result in decreased capacity of institutions in decades to come, and assumes that we will be unsuccessful in increasing participation for the cohorts that we require for a knowledge society and economy. The third scenario, in which we eliminate barriers for men and other under-represented groups, is more likely to meet the requirements of the knowledge society to which we aspire.

Quality and the barriers to PSE

Barriers to access must not be viewed as solely determined by financial resources. Although financial barriers are still cited frequently, evidence now shows that the most significant barriers to access and persistence are informational and motivational, affecting one in three Canadians who do not attend PSE.

CCL has suggested how more forceful pan-Canadian action on e-learning, on credit transfer, and on recognition and validation of prior and non-formal learning can enrich substantially the learning life of individuals, encourage them to take advantage of PSE using flexible delivery methods, and contribute to the efficiency and effectiveness of the PSE sector in helping Canada meet its social and economic goals.

Chapter 6 Access for Under-represented Groups

6.1 OVERVIEW

Given the many social and economic advantages of a post-secondary education for individuals and countries, it is clearly in society's best interest to make sure even the most disadvantaged citizens benefit from advanced studies.

Canada has made significant strides in increasing PSE participation rates for some under-represented groups—most notably with women, who currently form the majority of university and college students. To a lesser extent, there has also been some progress in increasing participation rates among Aboriginal youth and low-income youth, but progress has fallen far short of achieving parity. In fact, young men are now an under-represented group in terms of university participation.

A comprehensive profile of those attending PSE and those who are not needs to be developed. It is equally important to understand the factors that affect a person's decision to attend PSE, particularly for groups who are traditionally under-represented, such as those from low-income families.

Chapter 5 outlined a range of barriers many youth face as they move from high school to post-secondary education. Research shows that some face unique transitional issues and, as a result, have lower rates of PSE participation. Although recent research has provided valuable insight into barriers—and perceptions of barriers—faced by under-represented groups, data on the participation rates and educational experiences of these groups are still not consistently collected.

CCL's 2006 PSE report underlined that the successful completion of PSE by under-represented groups is key to achieving a skilled and adaptable workforce and to replenishing Canada's aging workforce. It concluded that Canada must develop policy and program options that will improve access for learners from these groups.

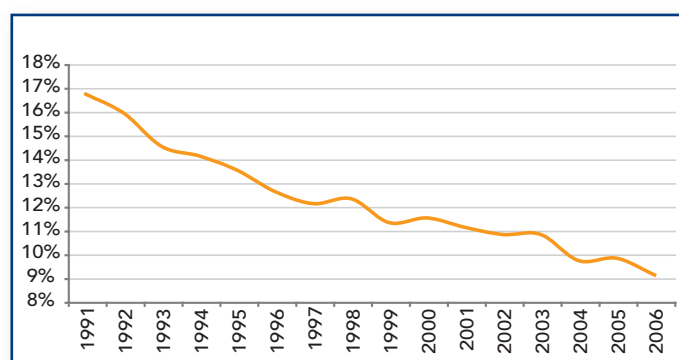
This chapter updates, wherever possible, data presented in the 2006 report on access to PSE for under-represented groups. Indicators are the result of available data on dropout, participation and completion rates among these groups. Information is also included on the gender gap, as well as educational characteristics of immigrants.

6.2 HIGH-SCHOOL DROPOUT RATES

Canada's high-school dropout rates have been declining for several decades. In 2006, the rate hovered at around 9% down from nearly 17% in 1991 (see Figure 6.2.1). The dropout rate measures the percentage of youth who did not finish high school and, consequently, may be having

problems making a transition from high school to PSE. It also indicates some problems related to finding long-term, productive employment, as those without high-school diplomas tend to be employed in low-paying jobs. There are exceptions to this generalization, since some highly paid jobs may not require high levels of skills other than on-the-job training. Such is the case in some of the resource industries, which can entice young people into the labour market before they complete secondary school.

Figure 6.2.1 High-school dropout rate, Canada, 1991–2006



Source: Statistics Canada, Labour Force Survey, 2006

The most recent data available for rural youth show that dropout rates in Canada's small towns and rural areas are twice that of metropolitan areas.³⁶

Table 6.2.1 High-school dropout rate as a percentage of all 20- to 24-year-olds, Canada and Provinces, school-year average from 2003–2004 to 2005–2006

	TOTAL	CITIES*	SMALL TOWNS	RURAL AREAS
Canada	9.5	8.5	14.9	16.6
N.L.	8.9	6.4	11.1	13.1
P.E.I.	8.9	7.1	11.6	11.8
N.S.	8.5	6.9	13.7	12
N.B.	9.4	7.7	11.7	12.2
Que.	11.3	10	19	18.5
Ont.	8.4	7.8	13.2	14.9
Man.	12.6	10.5	16.5	21
Sask.	10.3	8.9	11.4	16.8
Alta.	11.3	9.9	17	21.7
B.C.	7.4	6.7	12.6	17.3

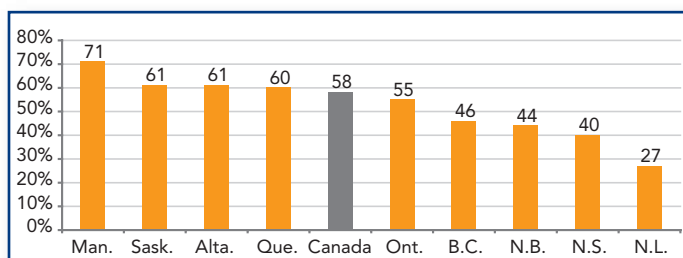
* Includes Census Metropolitan Areas and Census Agglomerations, as defined by Statistics Canada

Source: Statistics Canada, Labour Force Survey, 2006

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The limited data on dropout rates for under-represented groups are usually found in Statistics Canada's Census. The 2001 Census showed improvements in the retention of Aboriginal youth (see Figure 6.2.2), but, nonetheless, showed that Aboriginal youth are still much less likely to finish their high-school education than non-Aboriginal youth.³⁵

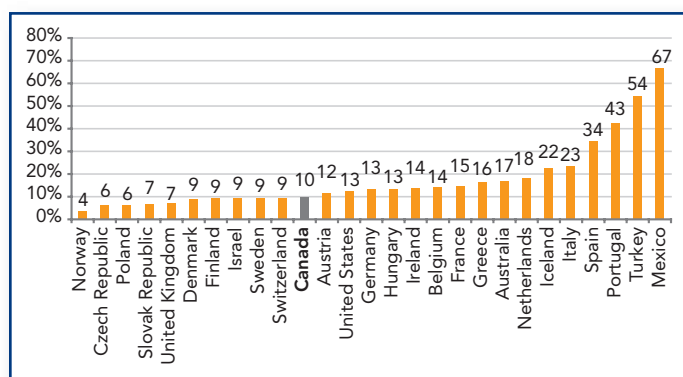
Figure 6.2.2 **Percentage of on-reserve Aboriginal population aged 20–24 with less than high-school education, Canada and provinces, 2001**



Source: Berger, J., A. Motte, & A. Parkin. *The Price of Knowledge 2006–2007: Chapter 2—Barriers to Post-Secondary Education*. Canada Millennium Scholarship Foundation, 2007
Data source: Data for this report was drawn from the 2001 Census

One of the statistics used to make international comparisons on dropout rates is the percentage of youth who are not in education and who are without upper-secondary education. Of the 27 countries for which data were collected in 2004, Canada ranked 11th, after the Scandinavian countries, the Czech Republic, Poland, the Slovak Republic, the U.K., Israel, and Switzerland (see Figure 6.2.3).

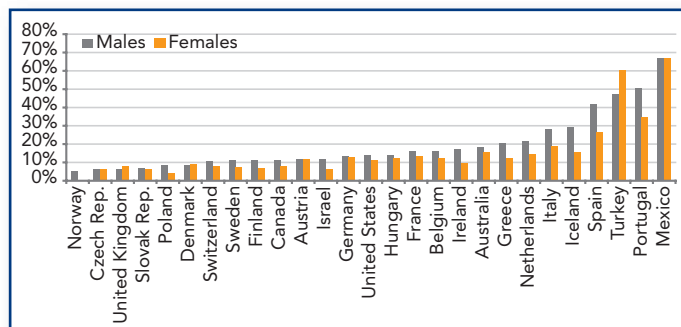
Figure 6.2.3 **Percentage of 20- to 24-year-olds not in education and without upper-secondary education, OECD countries, 2004**



Source: OECD, INES-Network B, *Transition Database 2006*, by special request

In 2004, with the exception of a few OECD countries, the percentage of 20- to 24-year-olds without high school, not in education and unemployed, was higher for men than for women, sometimes by a significant margin (see Figure 6.2.4 and Table 6.2.2).

Figure 6.2.4 **Percentage of 20- to 24-year-olds not in education and without upper-secondary education, by gender, OECD countries, 2004**



Data Source: OECD, INES-Network B, *Transition Database 2006*, by special request

In some countries, this may reflect differing social trends. Research indicates that males tend to have more difficulty making the transition from high school to post-secondary education.

Table 6.2.2 **Percentage of 20- to 24-year-old population, below upper-secondary education, not in education and unemployed, OECD countries, 2001–2004**

	2001		2002		2003		2004	
	M	F	M	F	M	F	M	F
Australia	17.5	14.7	17.6	8.6	17	10.3	14.2	7.3
Austria	11.8	5.2	16.3	7.4	15.7	11	15.4	8.5
Belgium	17.9	14.2	15	22.3	22.6	19.5	21.1	18.3
Canada	17.1	9.3	17.5	9.9	17.8	10.1	16.5	8.9
Czech Republic	33	18.7	29.2	15.3	30.6	19.8	30.8	19
Denmark	4.6	3.6	10.7	6.3	4.8	5.4	5.4	6.8
Finland	11.8	5.8	9.1	5.1	23.2	22	13.3	6.3
France	20	17.4	20.1	17.2	19.7	15.7	23.9	23.3
Germany	18.6	10.9	22.7	13.5	26.1	15.6	15.6	9.3
Greece	14.3	18.7	13.4	19.7	11.9	21.3	15.4	18.7
Hungary	14.4	5.1	17.9	5.1	15.3	6.4	14.6	6
Iceland	1.2	3.2	c	c	c	c	c	c
Ireland	10	5.6	12.3	6	11.9	5.2	13.5	10.2
Italy	15.5	15.5	16.9	15.5	m	m	15.4	17.4
Luxembourg	2.3	7.2	5.9	7.6	9	7.9	8	13.9
Netherlands	3.9	4.3	3.2	3	3.2	3	8.1	6.4
Norway	14.6	9.1	23.8	7.4	18.2	8.7	13.2	5.9
Poland	39.1	31.6	46.4	32.9	45.6	43.3	29.1	20
Portugal	6	8.3	6.7	9.8	8.7	11.5	m	m
Slovak Republic	50.7	19.8	13.9	16.6	58.2	28.3	c	c
Spain	13.1	18.7	13.9	16.6	14.8	19.2	6.7	8.3
Sweden	17.5	12.2	18.4	14.5	17.7	15.4	12.2	11.6
Switzerland	m	m	7.7	8.9	[12.9]	[15.9]	m	m
U.K.	15.2	7.2	16.8	5.3	20.5	7.6	12	9.7
U.S.	12.5	12	12.5	12	11.2	12.6	12	10.4

m=Missing data

c=Too few observations to provide reliable estimates

Note: Numbers in square brackets are considered statistically insignificant due to small sample size

Source: OECD, *Education at a Glance*, various years

ACCESS FOR UNDER-REPRESENTED GROUPS

6.3 HIGH-SCHOOL GRADUATION RATES

High-school graduation is an important indicator of the PSE preparedness of young people and is therefore a key measure in understanding trends in access. High-school graduations rates—the ratio of graduates to the total population at the typical age of graduation—are measured across several OECD countries.

Due to a lack of comprehensive information gathering, no Canadian figures are available past 2001, making it difficult to determine whether the rates have improved or worsened over the past six years. In 2001, Canada's graduation rates were below the OECD mean and well below rates for Japan, France, Germany and Italy. Interestingly, Canadian rates are comparable to those of the U.S. in 2001 for males, but seven percentage points higher for females (see Table 6.3.1 and Figure 6.3.1).

Table 6.3.1 **Upper-secondary graduation rates, G7 countries, 2001–2004**

Ratio of the upper-secondary graduates to the total population at typical age of graduation (times 100), in public and private institutions.

	GRADUATION RATE											
	2001			2002			2003			2004		
	M	F	M+F	M	F	M+F	M	F	M+F	M	F	M+F
Canada	71	80	75	m	m	m	m	m	m	m	m	m
France	79	86	82	m	m	m	78	84	81	m	m	m
Germany	89	94	92	91	96	93	95	99	97	97	101	99
Italy	79*	85*	82*	79	83	81	m	m	m	80	83	81
Japan	91	95	93	90	94	92	90	93	91	90	92	91
U.K.	m	m	m	m	m	m	m	m	m	m	m	m
U.S.	70	73	72	69	76	73	72	75	73	72	79	75
OECD mean	78	85	82	75	87	81	75	82	78	77	86	81

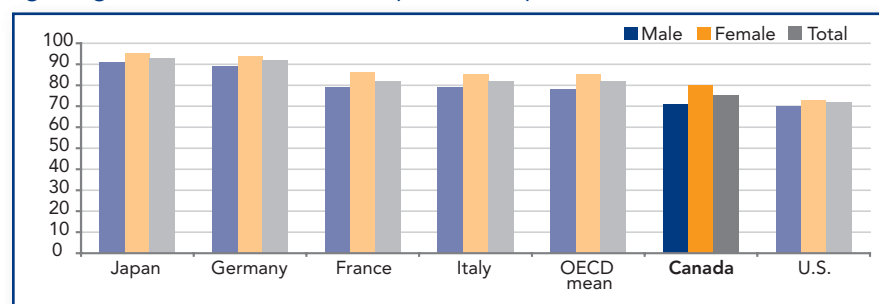
* 2001 Reference year

m=Missing data

Source: OECD, *Education at a Glance*

Figure 6.3.1 **Upper-secondary graduation rates, G7 countries, 2001**

Ratio of the upper-secondary graduates to the total population at typical age of graduation (times 100), in public and private institutions.



Note: Due to a lack of data, the U.K. does not appear on this graph.

Source: OECD, *Education at a Glance*, various years

6.4 PARTICIPATION OF YOUTH FROM LOW-INCOME FAMILIES

Traditionally, young people from families with lower household incomes have experienced lower rates of PSE participation. Although many factors may affect their decision about whether or not to attend a post-secondary institution, they obviously encounter greater financial barriers to access, with parents less able to provide financial support for their education. A study by the Canada Millennium Scholarship Foundation³⁷ documented that only 53% of Ontario families in the \$30,000 to \$50,000 income range saved for their children who attended college—compared with 82% of families who earned \$120,000 or more a year. The trends were similar for youth attending university.³⁸

A more detailed breakdown of PSE participation by household income reinforces this trend. Table 6.4.1 shows a similar trend of participation rates rising with income levels. These data show that youth from families with incomes of more than \$75,000 are nearly twice as likely to attend university as youth from families earning less than \$25,000 a year.

The study also shows that parental education is a significant factor affecting PSE participation rates. Of children whose parents had attended university, 50% were enrolled in university themselves. That is nearly three times the participation rate for children of parents who never attended university.

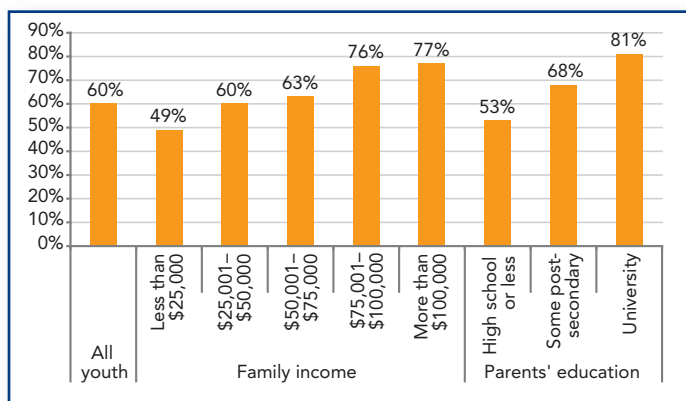
PART I REPORTING PERFORMANCE AND PROGRESS OF PSE IN CANADA

Table 6.4.1 **Post-secondary participation by household income, parental education, Canada, 2001**

BEFORE-TAX PARENTAL INCOME RANGE	UNIVERSITY PARTICIPATION RATE	COLLEGE PARTICIPATION RATE	TOTAL PARTICIPATION RATE
Less than \$25,000	20%	29%	49%
\$25,001–\$50,000	23%	37%	60%
\$50,001–\$75,000	25%	38%	63%
\$75,001–\$100,000	38%	38%	76%
More than \$100,000	46%	32%	77%
HIGHEST LEVEL OF PARENTAL EDUCATION	UNIVERSITY PARTICIPATION RATE	COLLEGE PARTICIPATION RATE	TOTAL PARTICIPATION RATE
University	50%	32%	81%
Post-secondary certificate or diploma	28%	40%	68%
High school or less	17%	36%	53%

Source: Berger, J., A. Motte, & A. Parkin. *The Price of Knowledge 2006–07: Chapter 1—Why Access Matters*. Canada Millennium Scholarship Foundation, 2007

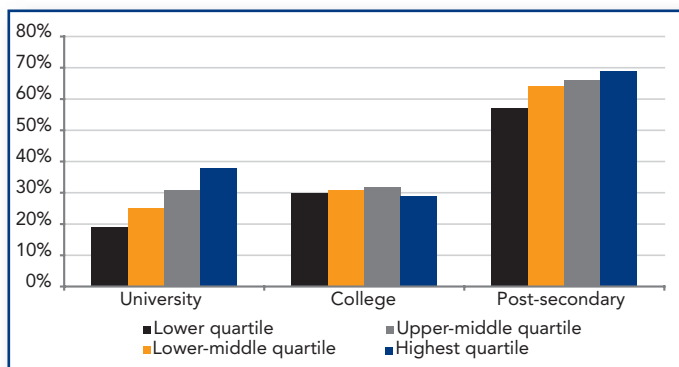
Figure 6.4.1 **Participation in post-secondary education among 18- to 24-year-olds, Canada, 2001**



Source: Berger, J., A. Motte, & A. Parkin. *The Price of Knowledge 2006–07: Chapter 1—Why Access Matters*. Canada Millennium Scholarship Foundation, 2007

Despite overall lower PSE participation rates for youth from lower income families, the college participation rate for youth does not appear to be affected by income. Youth from all income quartiles have a nearly equal propensity to attend college (see Figure 6.4.2).

Figure 6.4.2 **University, college and overall post-secondary participation rates of 18- to 21-year-olds, by family income quartiles**



Source: Rahman A., J. Situ, & V. Jimmo. *Participation in Postsecondary Education: Evidence from the survey of Labour and Income Dynamics*. Statistics Canada, Catalogue No 81-595-MIE, No 036, 2005

6.5 PARTICIPATION OF ABORIGINAL PEOPLE IN CANADA

Since 1986, the rates of both PSE attendance and completion among Aboriginal people has improved steadily (see Table 6.5.1). The most recent statistics, from the 2001 Census, show a significant increase in the participation of native groups over the previous 15-year period, with a resulting decrease in the gap in PSE attendance and completion between Aboriginal people and other Canadians.

Despite these increases, the stark fact remains that Aboriginal attendance and participation rates are still well below Canadian averages. Research on barriers to PSE identified by on-reserve First Nations Peoples found the following:

- 53% have inadequate funding
- 46% have poor academic preparation
- 28% do not feel welcome on campus
- 20% consider PSE unnecessary

When Aboriginal youth were asked why they did not pursue PSE, their responses were similar—although the majority (59%), cited the need to support family most often.³⁹

Table 6.5.1 **Proportion of Canadians who were taking, or had completed, post-secondary education, 1986–2001**

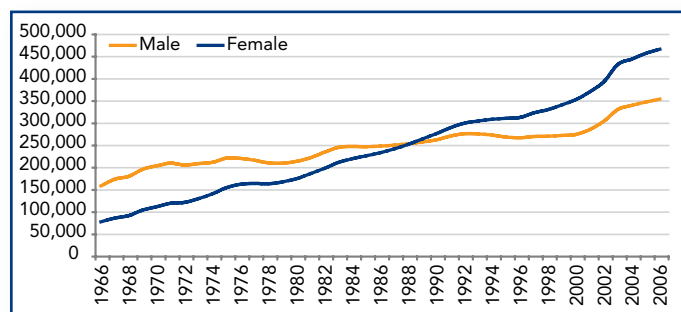
CENSUS YEAR	AGE	REGISTERED INDIAN	OTHER ABORIGINAL PEOPLE	OTHER CANADIANS
1986	15–24	15%	24%	38%
	25–44	35%	48%	56%
	45–64	15%	28%	37%
	65+	4%	14%	23%
	Average	23%	36%	43%
1991	15–24	19%	28%	40%
	25–44	44%	55%	60%
	45–64	26%	40%	43%
	65+	8%	18%	26%
	Average	31%	43%	48%
1996	15–24	20%	29%	41%
	25–44	49%	58%	64%
	45–64	37%	47%	50%
	65+	10%	20%	20%
	Average	37%	47%	51%
2001	15–24	20%	26%	43%
	25–44	53%	58%	69%
	45–64	45%	48%	56%
	65+	14%	21%	32%
	Average	40%	45%	55%

Sources: Research and Analysis Directorate, Indian and Northern Affairs Canada, 1996 and 2005; *Aboriginal Post-secondary Education and Labour-market Outcomes Canada*, 1996 and 2004; and Statistics Canada 2001

6.6 PSE PARTICIPATION BY GENDER

While university enrolment rates for men and women are at all-time highs, female students now account for about 58% of students in bachelor degree programs. This is a striking change from the 1970s, when women accounted for only one in three full-time students. At present, women make up nearly half of the enrolment in master's programs and about 45% of those in PhD programs⁴⁰ (see figures 6.6.1 and 6.6.2).

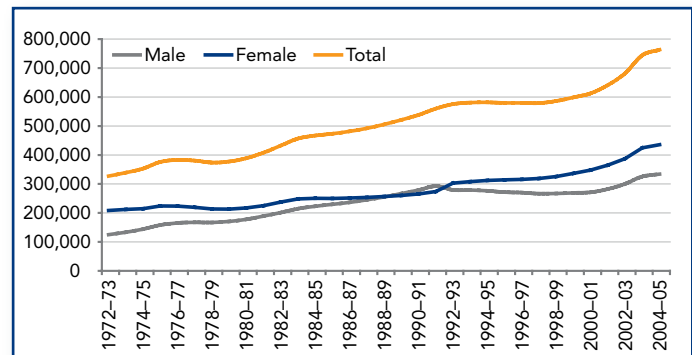
Figure 6.6.1 **Undergraduate enrolment, by gender, Canada, 1966–2006**



Note: numbers for 2006 are estimates

Source: The Association of Universities and Colleges of Canada. *Trends in higher education: Volume 1—Enrolment*, 2007

Figure 6.6.2 **Total PSE enrolment by gender, Canada, 1972–2005**

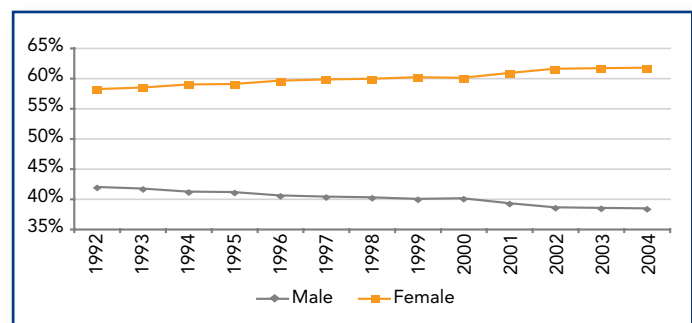


Source: Statistics Canada, Post-secondary Student Information System (PSIS), 2004

The situation is similar when it comes to the distribution of university graduates by gender. In 2004, 61% of university graduates were women and 39% were men.

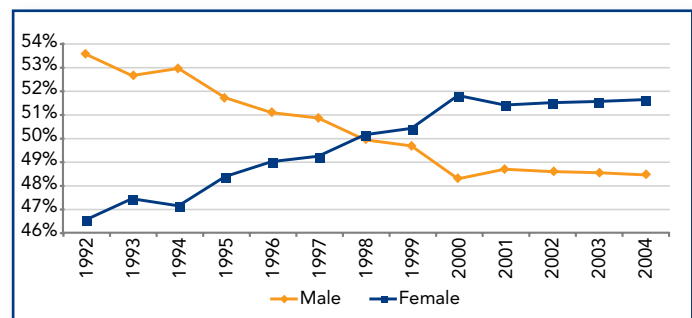
Figures 6.6.3 and 6.6.4 show the trends in the proportion of graduates in undergraduate and graduate level broken down by gender since 1992.

Figure 6.6.3 **Proportion of graduates at undergraduate level by gender, Canada, 1992–2004**



Source: Statistics Canada, Post-secondary Student Information System (PSIS), 2004.

Figure 6.6.4 **Proportion of graduates at graduate level by gender, Canada, 1992–2004**

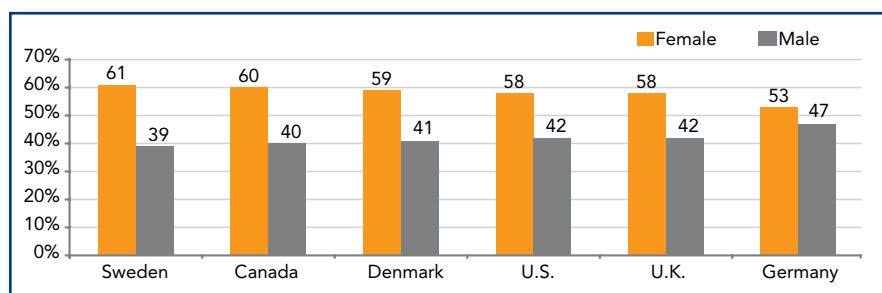


Source: Statistics Canada, Post-secondary Student Information System (PSIS), 2004

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Similar trends can be found in the college sector as well. In the 1999–2000 school year, the last year for which college data are available, full-time female students made up 55% of total college enrolment, a figure that was stable throughout the 1990s⁴¹ (see Figure 6.6.5). Internationally, all the G8 countries are experiencing the same trend reversal in attainment by gender.

Figure 6.6.5 Proportion of graduates at undergraduate and graduate levels by gender (ISCED 5 & 6), selected countries, 2004



Note: Education levels are defined according to the International Standard Classification of Education (ISCED). ISCED 5A level refers to academic higher education below the doctoral level and ISCED6 to doctoral level of academic higher education.

Source: Eurostat

Canada data is from Post-secondary Student Information System (PSIS), 2004

6.7 EDUCATION LEVEL OF IMMIGRANTS

The level of education and the skill profiles of immigrants looking to settle permanently in Canada are high. Data from Citizenship and Immigration Canada show that 46% of immigrants have completed at least a university degree. The percentage with a master's degree has risen from 5.7% in 1996 to 12.4% in 2005. The percentage of immigrants holding a doctorate degree in 2005, is up slightly to 2% from 1996, while the proportion of immigrants with a trade certificate declined to 4.7% in 2005, down from 9.7% in 1996.

Table 6.7.1 Landed immigrants 15 years of age or older, by level of education, Canada, 1996–2005

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Trade certificate	9.7	9.5	9.1	7.6	5.5	4.8	4.3	4.5	5.1	4.7
Non-university diploma	7.9	8.3	9.5	9.1	8.6	9.4	9.2	9.9	10.7	10.9
Bachelor's degree	21.7	24.7	26.6	29.8	32.3	34.2	34.1	33.6	32.3	31.5
Master's degree	5.7	7	7	8.9	9.8	9.6	10.1	9.5	11.3	12.4
Doctorate	1.5	1.7	1.8	2	1.8	1.8	1.8	1.6	2	2

Source: Citizenship and Immigration Canada, *Facts and Figures 2005* (published in 2006)

Immigration is a significant contributor to population growth in Canada. In 2005, Canada accepted 262,236 immigrants intending to settle permanently in the country. An additional 247,143 were accepted as temporary residents, including labourers, business people, students and tourists. According to Statistics Canada, about 70% of Canada's population growth can be credited to immigration. According to the 2001 Census, 18% of Canadians were recent immigrants while another 39% were either first- or second-generation immigrants.

The Longitudinal Survey of Immigrants to Canada⁴² showed that immigrants typically encounter transition problems after arriving in their new country. The report offers insight into their experiences, documenting some of the difficulties immigrants have when searching for a job. Lack of Canadian work experience was mentioned most often (50%), followed by lack of contacts in the job market (37%), lack of recognition of foreign experience (37%), lack of recognition of foreign qualifications (35%), and language barriers (32%).

Research has shown that these difficulties contribute to most immigrants earning average salaries lower than those of similar Canadian-born workers. But this income gap typically narrows over time.⁴³

FACTORS FOR SUCCESS

Canada must ensure that all learners, particularly those from under-represented groups who aspire to participate in PSE, are given every chance to do so. Therefore, information about the opportunities available and the benefits of attending PSE is crucial.

Colleges in Canada appear to be an equalizer between the different income levels. While university participation rises with income levels, college participation appears not to be affected by income. Data indicate that youth from all income quartiles have an equal opportunity to attend college.

POSITIVE DEVELOPMENTS AND TROUBLING TRENDS

The importance of lifelong learning opportunities

The high-school dropout rate for Aboriginal students and students in rural areas is above the national average. Data also reveal that students, particularly males, in high-growth and low-unemployment areas, are leaving high school in increasing numbers to benefit from the expanding job market in some regions of the country. There is, therefore, a need for a pan-Canadian approach to make continuous learning opportunities easily available for Canadians who wish to improve their skill sets while continuing to work. It is also important to facilitate their re-entry into formal education at any time during their working lives.

The under-representation of male undergraduates in PSE

Males have replaced females as an under-represented group in PSE participation and completion at the undergraduate and graduate levels. The male rates have been below those for females for almost a decade; and data reveal that this trend is deepening, particularly at the undergraduate level. The widening of this gender gap is as important today as it used to be when females were under-represented in the PSE sector and requires close monitoring.

PSE barriers for Aboriginal students

While the PSE participation rates for Aboriginal students have increased over the last 15 years, they still lag behind the national average by a considerable margin. The barriers to PSE participation for Aboriginal students are financial, academic, attitudinal and societal.

Prior learning assessment and recognition

It is essential that Canadians be able to use their credentials for employment or for further education opportunities. Prior learning assessment and recognition (PLAR) is an important issue for Canada, particularly in the absence of a pan-Canadian approach to credential recognition for both native-born and immigrant Canadians.

Chapter 7 Lifelong Learning

7.1 OVERVIEW

The changes wrought by 21st century economy now require that people have to not only learn for work, but learn from work as well. Regardless of their occupation, most working-age adults must constantly acquire new knowledge or upgrade skills to continue their career advancement—or simply to hold on to their existing jobs.

Lifelong learning is equally important to the country as a whole. To remain productive and viable, countries the world over need to develop an adaptable workforce with the necessary skills to adjust to rapid changes in the labour market and economy. Ongoing learning also contributes to individuals' health and well-being, and therefore to the quality of life within communities as well.

In November 2006, the federal government released *Advantage Canada: Building a Strong Economy for Canada*, a long-term economic plan that promotes “five competitive economic advantages that Canada needs to excel in the 21st century.” The five advantages identified by the plan are fiscal, tax, entrepreneurial, infrastructure and knowledge advantages. The stated goal of the new policy is to have the best-educated, most skilled and most flexible workforce in the world. In addition, the 2007 federal budget announced new labour-market architecture to help create a skilled, adaptable workforce, including enhanced access to training and labour-market programming for workers.

The concept of lifelong learning is challenging for many older Canadians who grew up in an era when people followed the old lockstep model: education first, followed by work and then retirement. It is particularly difficult for those who did not have great success at school and who possess weak literacy and numeracy skills. More than four in 10 Canadian adults cannot read, write, do arithmetic or solve problems at the level required to participate fully in today's economy. Research has found that literacy and numeracy skills decline with age, suggesting many Canadian baby boomers are not using these skills.

According to the 2006 report, *Too Many Left Behind: Canada's Adult Education and Training System*,⁴⁴ nearly 5.1 million working Canadians between the ages of 25 and 64 have only a high-school diploma or less. This represents 38% of total employment in this age group.

CCL's 2007 report State of Learning in Canada: No Time for Complacency revealed that Canada's overall rate of literacy did not improve between 1994 and 2003. It also found that, although the average level of literacy of Canada's youth is among the highest in the world, they are too few in number to increase the overall proportion of adults with high literacy skills. In fact, the proportion of Canadians with high levels of literacy declined slightly—a troubling trend in an economy that depends on skilled and knowledgeable workers.

7.2 THE WORKPLACE AS A CLASSROOM

Work sites are an important venue for adult learners, where the fortunate few—one in three Canadian workers in 2002—receive job-related skills development. Studies have shown that training in Canada is most often provided to people who already have higher than average skill and education levels, while those in greatest need of skill development are often overlooked.

International comparisons also highlight that Canada lags behind its global competitors in terms of workplace training. For example, training investment as a percentage of overall payroll is 1.55% in Canada, compared to 2.34% in the United States. While larger firms have a better track record, most new jobs in Canada are now created by small and medium-sized enterprises, which tend to provide less on-the-job training. This appears short-sighted in light of research into the gains that can be realized by investing in workers. Statistics Canada has documented that investment in education and training is three times as important to economic growth as investment in physical capital.⁴⁵

The OECD's 2002 *Thematic Review on Adult Learning* identified a significant lack of coordination in adult-learning programs in Canada. This gap occurs between federal and provincial governments, as well as between the public and private sectors. The OECD also identified the absence of a national forum for adult learning as a major barrier to developing initiatives that are coherent, consistent, effective and universally available.

Unlocking Canada's Potential, the Canadian Council on Learning's 2007 report on the state of workplace and adult learning, found that training is not a priority for many adults and most businesses. The report revealed that, while

most learning by adults takes place in the workplace, two-thirds of Canadians do not take part in any formal learning activities. It also noted that, although most adult Canadians recognize the benefits of learning, Canada lacks a sustained effort to establish a culture of learning across society. Significant barriers exist that prevent Canadian workers from participating in learning and training. Businesses, labour groups and government do not devote sufficient resources to training, and individual attitudes are not conducive to participation in learning and training.

With the exception of community colleges, which have historically better served older learners, most post-secondary institutions (PSIs) have traditionally not focussed on working-age adults. The bulk of their clientele is composed of young people leaving secondary school or CEGEP. With roughly two-thirds of new jobs now demanding some form of post-secondary credentials, this is likely to change. Increasingly, all PSIs will be called on to provide lifelong learning opportunities to Canadians of all ages, including those in the workforce.

Two of the Canadian Council on Learning's five knowledge centres—the Adult Learning Knowledge Centre, based in the Atlantic region, and the Work and Learning Knowledge Centre, in Ontario—examine specific aspects of lifelong learning. The latter centre's 2006 report, Connecting the Dots: Linking Training Investment to Business Outcomes and the Economy, reinforced that mobilizing Canadians' skills and knowledge is essential if Canada is to get ahead in the global marketplace. The report notes, "The most important factor in explaining the difference in economic growth between countries is the relative level of skills of their workforce."

CCL's annual Composite Learning Index (CLI) also presents indicators and data that focus on lifelong learning. The first index of its kind in the world, the CLI provides an annual measure of Canada's performance in a number of areas related to lifelong learning. The index is based on statistical indicators that reflect the different ways Canadians learn—in school, in the home, at work and within their community. A high CLI score means that a community possesses learning conditions that support economic and social success. While the rate varies from community to community, in 2007 Canada's overall CLI score was 76, compared to the national benchmark score of 73 established in 2006.

Since there have only been two releases of the Composite Learning Index to date, it is too early to identify trends over time.

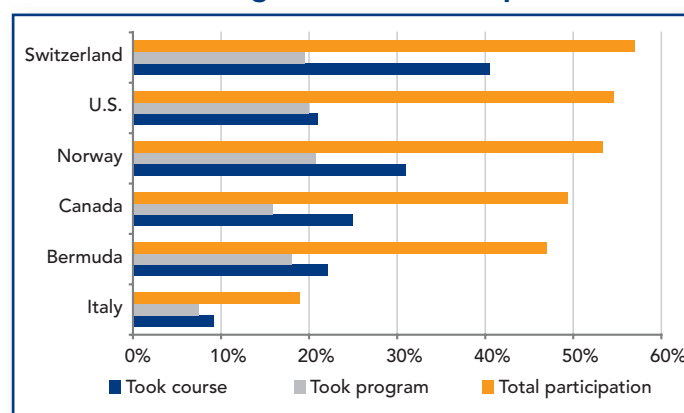
7.3 HOW DOES CANADA MEASURE UP?

The data and material contained in this chapter are based on the international Adult Literacy and Life Skills Survey (ALL) published in 2003. ALL is in the process of being replaced by a new survey, the Programme for the International Assessment for Adult Competencies, or PIAAC, which expects to release its first results in 2011. The new survey will introduce a wide variety of changes intended to identify and measure differences between individuals and countries in competencies believed to underlie both personal and societal success.

In its first cycle, PIAAC will assess competencies in literacy, numeracy, problem solving, and skills related to information and communications technologies. A survey of job requirements is also planned to allow more detailed assessments of competencies than in previous surveys. It is also anticipated that PIAAC will include a survey of businesses.

Because updated information was not available, this chapter has been reproduced from CCL's 2006 report on PSE.

Figure 7.3.1 **Percentage of population aged 16–65 participating in adult education and training, international comparison, 2002**



Note: Countries are ranked by the total participation rate.
Source: Statistics Canada and OECD. Adult Literacy and Life Skills Survey, 2003

PART I REPORTING PERFORMANCE AND PROGRESS OF PSE IN CANADA

Individuals look to adult education for a number of reasons: to complete education that was interrupted earlier in life, to acquire new skills or credentials that will enhance career options, or to expand the breadth or depth of learning for personal development reasons.

According to ALL, half the Canadian population aged 16 to 65 received adult education and training during 2002. The total percentages for Canada was slightly lower than in Switzerland, the U.S. and Norway, slightly higher than the percentage in Bermuda, and more than double the percentage in Italy. The survey also found that participation in all forms of education and training increased in all countries surveyed between 1994/1998 and 2003. Canada's participation rate increased from 35% (in 1994) to 50% in 2003.

Canadians most in need of skills development are the least likely to receive it. Research shows that individuals who already have high skill levels strongly associated with educational attainment are considerably more likely to participate in adult education and training.

There have been some changes in this pattern over time. Those with lower skill levels—most of whom have lower educational attainment—made greater gains in participation over the decade ending in 2003. Canadian research indicates that, among those individuals who did not complete high school or access post-secondary education in their youth, there is a group that has benefited significantly from adult education.⁴⁶

7.4 PARTICIPATION IN FORMAL JOB-RELATED TRAINING

One of the most important reasons for individuals to pursue adult learning is to acquire or enhance particular skills related to their employment. According to the Pan-Canadian Education Indicators Program (PCEIP), in 2002 approximately 4.8 million adult workers participated in formal, job-related training in Canada. This means that approximately one in three Canadian workers aged 25 to 64 was involved.

The Adult Education and Training Survey,⁴⁷ or AETS, showed increased participation in job-related training, from 28.5% in 1997 to 34.7% in 2002. Similar patterns of increase are revealed when the data are examined by gender, education level, age cohort and province (see Table 7.4.1). As with adult learning, a substantial gap generally remained for participation in job-related training between those who had completed a university degree (51.7% participation) and those with high-school completion or less (17.9%). Older workers with lower education levels participate less than those who are younger or have university degrees.⁴⁸

Table 7.4. Participation rate in formal job-related training for the adult workforce, Canada 1997 and 2002

	1997 (%)	2002 (%)
Total	28.5	34.7
Gender		
Males	26.7	32.5
Females	30.5	37.2
Age		
25–34 years	32.6	41.5
35–44 years	29.5	34.6
45–54 years	27.8	33.8
55–64 years	14.9	22.9
Educational attainment		
High school or less	15.7	17.9
Some post-secondary education	30.9	38.3
Completed post-secondary certificate or diploma	32.3	38.1
Completed university degree	42.8	51.7
Provinces		
N.L.	22.9	29.5
P.E.I.	23.2	30.8
N.S.	35	38.1
N.B.	25.1	34.7
Que.	20.2	31.7
Ont.	31.1	34.8
Man.	29.3	38.8
Sask.	31.5	37.7
Alta.	32.1	34.7
B.C.	32	38.8
Courses	22.4	29.4
Programs	7.9	8.5

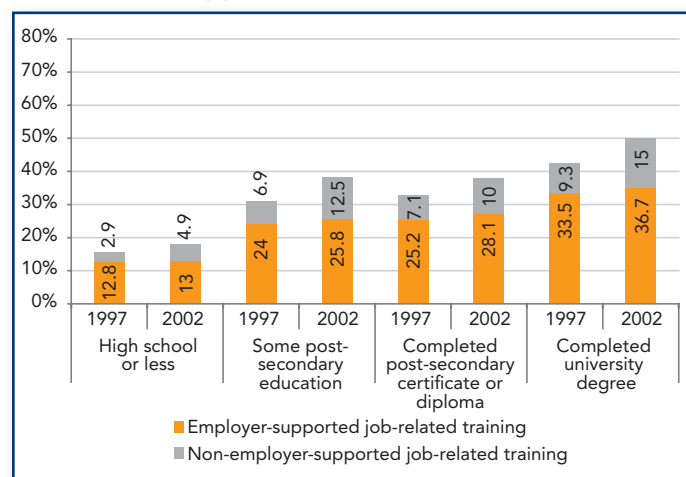
Note: The adult workforce is the population aged 25 to 64 who were employed at some point during the reference year.

Source: Peters, V. *Working and training: First results of the 2003 Adult Education and Training Survey*. Statistics Canada. Education, Skills, and Learning Research Papers. Catalogue No 81-595-MIE2004015, 2004

7.5 PARTICIPATION IN JOB-RELATED TRAINING BY LEVEL OF EDUCATION AND EMPLOYER SUPPORT

A large majority of job-related training in Canada is employer-supported. Of the total training provided, close to one-quarter of the programs and courses taken in 2002 focussed on business, management, public administration and related interdisciplinary fields. The overall rate rose from 22.4% in 1997 to 25% in 2002. In 2002, as in earlier years, those employed in white-collar jobs were much more likely to receive training (35.1% in 2002) than those in blue-collar jobs (15.7%).⁴⁹ CCL's *Lessons in Learning* article from Feb. 17, 2006,⁵⁰ presents data on the distribution of employer-supported training in Canada (see Figure 7.5.1).

Figure 7.5.1 **Participation in job-related training, by level of education and employer support, Canada 1997, 2002**



Source: Canadian Council on Learning, *Lessons in Learning*, 2006
 Data Source: Peters V. *Working and Training: First Results of the 2003 Adult Education and Training Survey*. Statistics Canada. Education Skills and Learning Research Papers. Catalogue No 81-595-MIE2004015, 2004

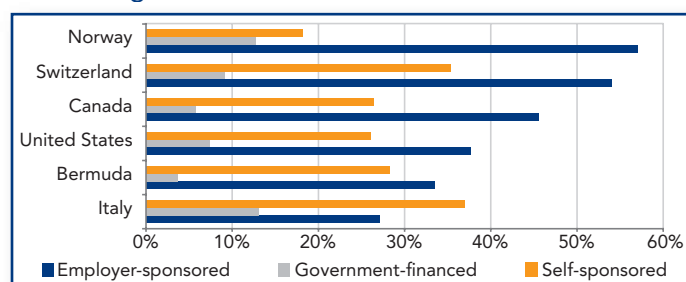
7.6 SOURCES OF FINANCIAL SUPPORT FOR ADULT EDUCATION, BY GENDER

The international comparison in the ALL report provides data by gender.⁵¹ In all jurisdictions surveyed, men were more likely than women to receive employer support for training, while women were more likely than men to self-finance their adult education and training.

In Canada, employer support for male employees is higher than in the United States. However, proportionately more female employees receive support from their employers in the U.S. than in Canada (see Figure 7.6.1).

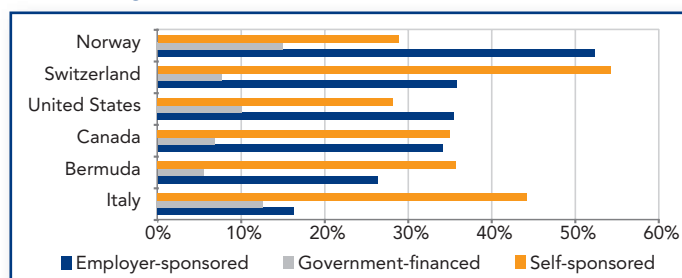
Figure 7.6.1 **Sources of financial support for adult education and training, international comparison 2003**

A. Percentage of men participating in adult education and training who receive financial support from various sources, aged 16–65, 2003



Note: Countries are ranked by the percentage of men who received support from their employer.

B. Percentage of women participating in adult education and training who receive financial support from various sources, aged 16–65, 2003



Note: Countries are ranked by the percentage of women who received support from their employer.

Source: Statistics Canada and OECD, *Adult Literacy and Life Skills Survey*, 2003

Another dimension to the assessment of the quantity of training is highlighted in the Council of the Federation's 2006 publication, *Discussion Guide: The Future of Post-secondary Education and Skills Training in Canada*.⁵² It cites internationally comparable data from the American Society for Training & Development that shows that in 2002 "employers in Canada spent US\$560 per employee on workplace training. This is considerably less than other OECD countries, including the United States, Japan and European countries."⁵³

The council's publication also included findings from The Conference Board of Canada that show "Canadian employers spend a much lower share of their payroll on training (1.55% in 2003) than employers in the United States (2.34% in 2003)."⁵⁴

CCL's website notes that "a recent OECD report showed that Canadian firms invest less in formal workplace training than do firms in the U.K., the U.S. and the Nordic countries. Thus, we risk losing our early advantage. The report cites both the absence of a strong tradition of workplace training and the predominance of small business in Canada as possible reasons for our mediocre performance in this area."⁵⁵

In addition, AETS data underlying CCL's Composite Learning Index show that any recent increases in Canadian on-the-job training have been paid for by individual workers—not by employers.

7.7 REASONS FOR UNMET NEEDS

PCEIP 2003 reports that, in 1997, 1.5 million people (or 7% of Canadians aged 17 and over, excluding full-time students) said they did not take any job-related training⁵⁶ (see Figure 7.7.1). The most frequently cited reasons were that they were too busy at work and that it was too expensive.

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Figure 7.7.1 **Reasons for having unmet training needs/wants, participants and non-participants, Canada, 2002**



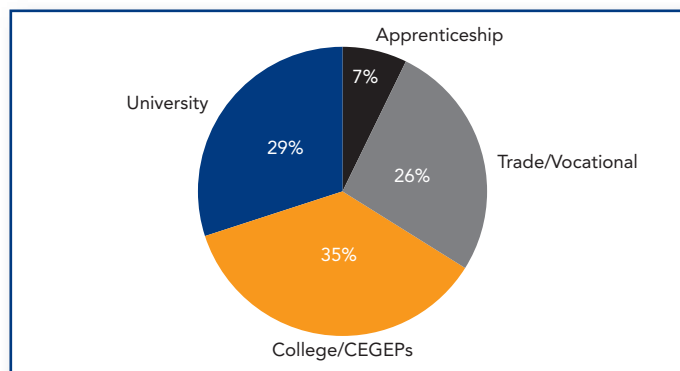
Data source: Table D2.6

Figure source: *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program*. Council of Ministers of Education, Canada and Statistics Canada: Canadian Education Statistics Council, Catalogue No 81-582-XIE, (Ottawa: 2006)

7.8 PARTICIPATION IN PSE BY TYPE OF INSTITUTION

In Canada, a recent study⁵⁷ by the Canadian Policy Research Networks showed relatively low rates of participation in post-secondary education among adults (see Figure 7.8.1). The same study highlights the important role of the public post-secondary system has in providing adult education to those who pursue it.⁵⁸

Figure 7.8.1 **Participation in post-secondary in 2002 by type of institution (25- to 54-year-olds)**



Source: Myers, K. & P. De Broucker. *Too many left behind: Canada's adult education and training system*. Canadian Policy Research Networks, Research Report W34, (Ottawa: 2006)

Table 7.8.1 **Participation in post-secondary education by selected province (25- to 54-year-olds)**

	Alta.	B.C.	N.S.	Ont.	Que.	TOTAL
Learners	83,290	124,285	16,591	341,881	168,302	816,015
Adults without a university degree	1,146,772	1,458,946	330,545	4,100,153	2,687,659	10,970,026
Learners as a % of the target population	7.3	8.5	5	8.3	6.3	7.4

Source: Myers, K. & P. De Broucker. *Too many left behind: Canada's adult education and training system*. Canadian Policy Research Networks, Research Report W34, (Ottawa: 2006)

FACTORS FOR SUCCESS

Lifelong and life-wide learning is recognized as an imperative in today's complex world of advancing technologies. Canadian workers have a constant need for education and training opportunities throughout their adult lives. To address the learning needs of working-age adults, post-secondary institutions will need to forge stronger links with the workplace.

Post-secondary institutions must play a greater role in the delivery of adult education. The escalating need for job retraining and skills upgrading—along with the impending decline in traditional enrolment of youth as the Echo Boom generation moves into adulthood over the next decade—present a confluence of conditions to advance this agenda. Post-secondary institutions need to explore ways to work with small and medium-size enterprises to provide the adult learning needed both by their firms and by millions of Canadians looking to improve their skills and job prospects.

POSITIVE DEVELOPMENTS AND TROUBLING TRENDS

Improved access to lifelong learning opportunities for all adults

The paucity of lifelong learning opportunities is one of the chief weaknesses related to post-secondary education in Canada.

Today, there is a mismatch between the skill and learning needs of millions of Canadians and the current availability of adult education and training opportunities. The OECD has found that a lack of co-operation between federal and provincial governments is hampering the availability of these opportunities in Canada.

Evidence shows that the erosion of literacy skills among adults is an acute policy issue, given the aging of the Canadian population and the changing needs of the workplace and economy. Increased learning options for adults need to be developed, both within the workplace and PSIs, including guidance and counselling to link learning to employment opportunities. The learning needs of low-literacy individuals not in the labour force and recent immigrants—many of whom are unable to access on-the-job training—are particularly pronounced. Training must be made more readily available to those in greatest need, given that individuals with higher levels of education currently receive most adult education.

Other countries have been more successful than Canada in encouraging employer-supported training and lifelong learning. Canada must act quickly or it risks falling further behind.

Chapter 8 Affordable and Sustainable PSE

8.1 OVERVIEW

Affordability, from the individual learner's perspective, is a growing barrier to PSE access. A person's decision to pursue or continue PSE may be affected if the cost associated with it proves unmanageable—or even if it is perceived to be unmanageable. In such cases, potential students may decide not to attend or may alter their choice of institution or the timing of attendance. Research shows a relationship between the amount of debt carried by students and their persistence with their studies; the likelihood of abandoning their studies before completion increases with increased student debt.⁵⁹

Only about one-third of students use government student-loan programs, with other students utilizing other sources of funding (credit cards, family and friends). Therefore, the cost of education and trends in student debt are important indicators that contribute to the assessment of affordability of PSE and need to be tracked.

From a government perspective, affordability is an important element in the goal of enhancing PSE accessibility for all citizens. However, affordability is fundamentally related to the issue of sustainability and governments' interest in being able to provide secure and predictable funding for PSE.

In addition to budgets for post-secondary infrastructure and operations, governments maintain various student financial-assistance programs (provincial and territorial programs complement the federal Canada Student Loan Programs, tax initiatives and the Canada Millennium Scholarship Foundation awards). The issue of sustainability has become especially relevant as pressure has increased to balance provincial and federal budgets and as health-care costs have grown.

CCL's 2006 report on PSE found that the program share of government PSE expenditures remained constant over the first half of the last decade and has trended upward in recent years. However, the report also noted that student debt loads doubled as a result of rising PSE costs. This has impeded PSE access for low-income families and other under-represented groups.

Studies have found that concern about prospective debt—even if these fears are based on misperceptions of actual costs—can deter those in under-represented groups from pursuing higher education. CCL's report warned that the ability of individual students to finance post-secondary studies and the PSIs' capacity to provide quality education and training, are matters of national interest given the importance of higher education to the strength of the economy and society.

Within the context of the multifaceted aspects of affordability and sustainability, this section presents a series of indicators to reflect trends in related factors. Information is presented on the costs of education over time (including tuition rates) and student debt. The section concludes with an examination of expenditures on PSE in Canada over the years.

The complex question of whether Canada's PSE sector is both affordable and sustainable is not addressed fully by these indicators alone, but they do provide insight into some of the most significant factors.

8.2 UNDERGRADUATE PROVINCIAL TUITION RATES

Although tuition is not the only cost attached to post-secondary education, it is an important consideration. Significantly different tuition policies are being pursued across the country, resulting in various rates of increase in tuition fees. Some provinces have imposed controls on tuition increases while others have let institutions set the rates. For this reason, the following section uses individual provincial data.

Table 8.1.1 presents provincial data on tuition fees. The average increase in tuition between 1995–1996 and 2005–2006 is 44%. However, six jurisdictions recorded increases of more than 50%, while two recorded decreases over the same period.

Table 8.2.1 Average undergraduate university tuition fees,* Canada and provinces, 1995–1996 and 2005–2006 (in 2001 constant dollars)

	1995–1996	2005–2006	PERCENTAGE CHANGE
	\$	\$	%
Canada	2,664	3,844	44
Newfoundland and Labrador	2,583	2,377	-8
Prince Edward Island	3,180	4,237	33
Nova Scotia	3,630	5,729	58
New Brunswick	2,831	4,595	62
Quebec	1,903	1,733	-9
Ontario	2,813	4,452	58
Manitoba	2,816	2,985	6
Saskatchewan	2,994	4,617	54
Alberta	3,066	4,675	52
British Columbia	2,864	4,446	55

* Both in- and out-of-province students are included in the weighted average calculations; foreign students are not included.

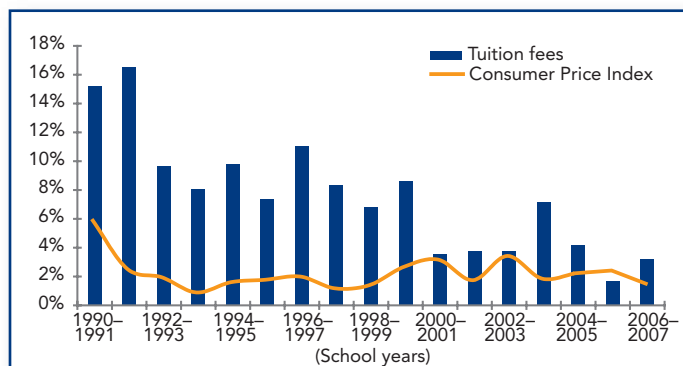
Data source: Survey of Tuition and Living Accommodation Costs for Full-time Students, Statistics Canada

Table source: Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program. Council of Ministers of Education, Canada and Statistics Canada, Catalogue No 81-582-XIE (Ottawa: 2006)

Comparing the rate of increase in undergraduate tuition rates versus inflation, it becomes evident that undergraduate tuition rates have increased far faster than inflation rates.

The rates of increase in tuition have slowed down in recent years, after soaring in the 1990s. Since 2000, the average year-over-year increase has been just under 4%. While substantially lower than in the previous decade, undergraduate tuition increases have, on average, still exceeded the annual inflation rate (see Figure 8.2.1).

Figure 8.2.1 Rates of increase in undergraduate tuition fees versus inflation, Canada, 1990–2007



Note: Consumer Price Index annualized by taking averages from September to August.

Source: Statistics Canada. Tuition and Living Accommodation Costs for Full-time Students at Canadian Degree-granting Institutions (TLAC), 2006

Along with the overall increase in undergraduate tuition, some individual faculties have raised tuition rates more dramatically (see Table 8.2.2)—particularly dentistry, medicine and law. Compulsory fees for recreation, student health services and student association services have also increased on most campuses.

Table 8.2.2 Average university tuition fees by faculty, Canada, 1994–1995, 2005–2006 and 2006–2007

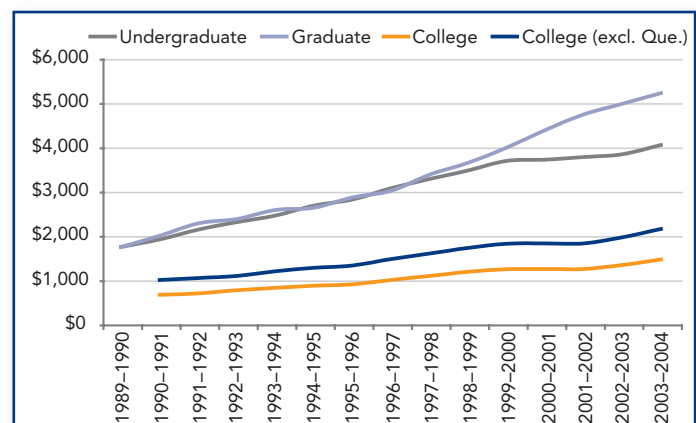
	1994–1995	2005–2006	2006–2007	PERCENTAGE CHANGE 1994–1995 TO 2006–2007
(Current-year dollars)				
Agriculture	3,255	3,643	3,712	14
Architecture	3,111	3,610	3,805	22.3
Arts	2,630	3,982	4,104	56
Commerce	2,424	3,806	3,989	64.6
Dentistry	2,666	13,033	13,463	405
Education	2,577	3,277	3,334	29.4
Engineering	2,456	4,740	4,887	99
Household sciences	2,531	3,914	4,037	59.5
Law	2,447	6,904	7,221	195.1
Medicine	2,546	10,318	10,553	314.5
Music	2,641	3,936	4,092	54.9
Science	2,327	4,219	4,353	87.1
Undergraduate	2,535	4,211	4,347	71.5
Graduate	2,490	6,134	6,479	160.2

Data Source: Statistics Canada, Survey of Tuition and Living Accommodation Costs for Full-time Students, 2006

Table Source: Statistics Canada. Tuition and Living Accommodation Costs for Full-time Students at Canadian Degree-granting Institutions (TLAC), 2006; percentage change: CCL calculations

The most recent data on tuition rates in Canada's colleges (2003–2004), show that tuition is about half that of university undergraduate programs.

Figure 8.2.2 Post-secondary tuition rates, Canada 1989–2004 (in 2004 dollars)



Source: Millennium Scholarship Foundation based on Statistics Canada's Annual Tuition and Additional Fee Survey and the Manitoba Council on Post-Secondary Education

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8.3 STUDENT DEBT

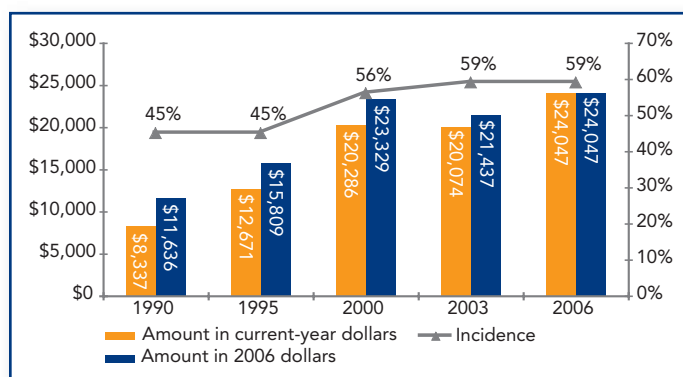
As shown in Figure 8.3.1, nearly 60% of university undergrads who graduate do so with student debt. The debt load for these university students more than doubled between 1990 and 2006, increasing from \$11,636 to \$24,047 (in constant 2006 dollars). Most of this increase occurred during the 1990s—since 2000 debt loads have levelled off (and actually decreased in 2003).

However, the percentage of students requiring financial assistance has increased. The number of graduates who borrowed money rose significantly, from 45% in 1995 to 56% in 2000 and 59% in 2006. In 2006, more students were graduating with debt that is at higher levels than in 2003.

PSE costs are obviously viewed by many as an investment in the future that will yield better employment opportunities and higher levels of income. However, there is concern that debt levels are becoming too high and may affect persistence in PSE or transition to work and family formation. Furthermore, for the debt averse, the prospect of taking out loans can be a deterrent to participation in PSE.

Evidence also shows that students are relying more heavily than before on loans from family and financial institutions. In 2003, 31% turned to these sources for financial assistance. By 2006, 39% of all funds borrowed came from sources other than government.⁶⁰

Figure 8.3.1 **Average university undergraduate debt for borrowers upon graduation, Canada, in 2006 dollars, 1990–2006***



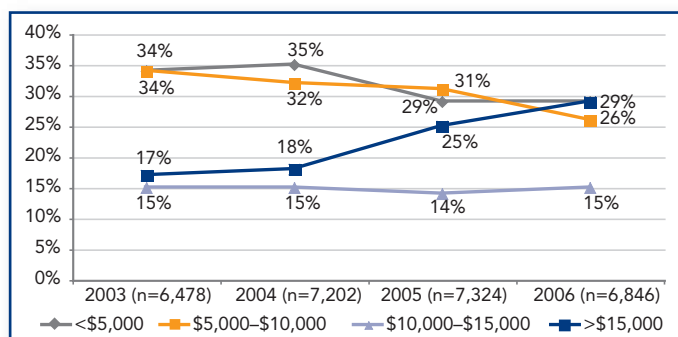
* The average debt figure from the 2000 National Graduate Survey has been replaced by the figure from the 2000 Graduating Student Survey. This facilitates comparisons with figures from 2000 and 2003. The 2000 NGS reported average debt of \$21,390 among the 42% of graduates reporting any debt.

Source: Berger, J., A. Motte, & A. Parkin. *The Price of Knowledge: Access and Student Finance in Canada – Third Edition*. Canada Millennium Scholarship Foundation, 2007

Similar to university graduates, college students seem to be accumulating more debt in recent years than did earlier students. Between 2003 and 2006 (see Figure 8.3.2), the percentage of college students who accumulated more than \$15,000 in debt increased from 17% to 29%. Conversely, the proportion of those who accumulated less than \$10,000 in debt declined.

Traditionally, colleges have appealed to students who wish to pursue studies close to home through shorter, less expensive courses. As this provides fairly rapid entry into the labour market, this combination of factors usually means less accumulation of debt for college students. The recent statistics on the increasing incidence of college-student debt for 2006 show a troublesome trend that may affect PSE access for some students, especially those who are debt averse.

Figure 8.3.2 **Change in accumulated debt among college students with debt, 2003–2006***



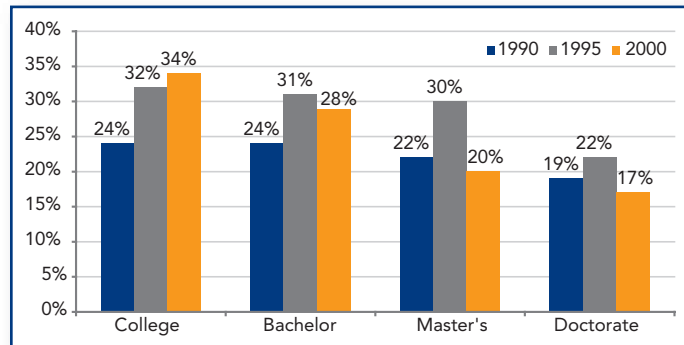
* This analysis of college student debt excludes students in Quebec for two reasons. First, particularly in 2005 and 2006, Quebec college participation in the survey was very low. Second, because Quebec college students pay no tuition, their inclusion in the survey would make it impossible to present figures that accurately represent the situation of college students outside the province.

Source: Berger, J., A. Motte, & A. Parkin. *The Price of Knowledge: Access and Student Finance in Canada – Third Edition*. Canada Millennium Scholarship Foundation, 2007

8.4 STUDENT-LOAN REPAYMENT

The actual level of debt with which a student graduates is only one indicator of the affordability of PSE. Information on an individual's success in repaying these loans is also important. The most recent available data (see Figure 8.4.1) show that the problem has eased for university students, while worsening for college students.

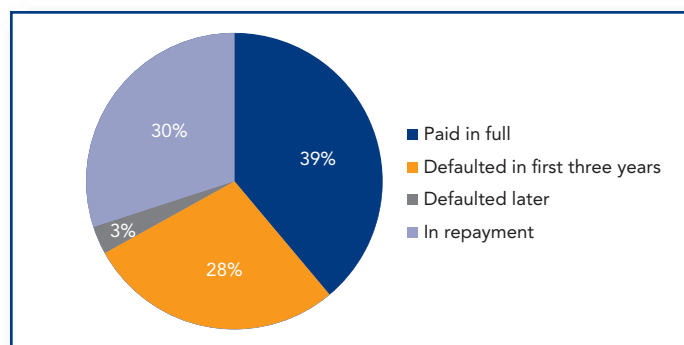
Figure 8.4.1 **Percentage of graduates reporting difficulties in repayment, by type of degree, Canada, 1990, 1995, 2000**



Source: Junor S. & A. Usher. *Price of Knowledge: Access and Student Finance in Canada*. Millennium Research Series. Canada Millennium Scholarship Foundation, 2004

More recent research from the experience of students who consolidated their Canada loans in 1994–1995, shows that nearly a decade later 39% had paid their loans in full (see Figure 8.4.2). Others reported difficulty with repayments; about 28% defaulted in the first three years and 3% defaulted later, during the 10-year period. This represents nearly one in three students defaulting on their student loans. Of course, students who default will often resume repayments later when their circumstances change. The balance, or roughly 30% of these students, were still repaying their loans 10 years after consolidating their loans.

Figure 8.4.2 **Status in September 2003 of Canada Student Loans consolidated in 1994–1995**



Source: Berger, J., A. Motte, & A. Parkin. *The Price of Knowledge: Access and Student Finance in Canada – Third Edition*. Canada Millennium Scholarship Foundation, 2007

Information about students who work while studying to cover the costs of their PSE education indicates more students are working today than in the past. In 1979, fewer than 30% of university students and fewer than 40% of college students worked either part time or full time. By 2001 more than 40% of university students and more than 50% of college students were working part-time or full-time.⁶¹

8.5 CHANGE IN PUBLIC AND PRIVATE EXPENDITURES ON EDUCATION

Figures on public expenditures for PSE are presented in detail in Chapter 5, with data on expenditures in constant dollars and as a percentage of total government spending. In Canada, public expenditures on PSE remained stable for most of the 1990s, at between 5.3% and 5.5% of total expenditures (on education, health and social services and non-social programs). At the end of the 1990s and into 2000, public expenditures on PSE (expressed as a percentage of total spending) began to trend upward, reaching 6.4% in 2005 and 6.5% in 2006.

Indices of change in public and private expenditures on education demonstrate that the relative share of PSE funding has shifted: private expenditures on education have increased more than public expenditures. For PSE as a whole, the indices for private expenditures changed from 100 in 1997–1998 to 124 in 2001–2002, while the indices for public expenditures on PSE changed from 100 to 110 for the same period. The indices for university for both private and public expenditures show the largest increases, but the indices for private expenditures show greater increases (131 versus 123). This indicates that the funding burden is shifting to individuals rather than governments.

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Table 8.5.1 **Indices of change in individuals' expenditures on education, by level of education, Canada, 1997–1998 to 2001–2002 (1997–1998=100)**

2001 CONSTANT DOLLARS						
	PRE-ELEMENTARY, ELEMENTARY, SECONDARY	TRADE- VOCATIONAL*	COLLEGE*	UNIVERSITY	ALL POST- SECONDARY	ALL LEVELS COMBINED
CANADA						
1997–1998	100	100	100	100	100	100
1998–1999	103	110	98	104	104	103
1999–2000	103	94	111	114	112	109
2000–2001	108	95	111	125	120	116
2001–2002	108	95	111	131	124	119

* Expenditures on private business colleges are not included.

Note: Since the series for Nunavut starts in 1999–2000, the calculation for Northwest Territories and Nunavut is for the period 1999–2000 to 2001–2002 only (1999–2000=100).

Table source: *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program*. Council of Ministers of Education, Canada and Statistics Canada: Canadian Education Statistics Council. Catalogue No 81-582-XIE, 2006

Table 8.5.2 **Indices of change in public expenditures on education, by level of education, Canada, 1997–1998 to 2001–2002 (1997–1998=100)**

2001 CONSTANT DOLLARS						
	PRE-ELEMENTARY, ELEMENTARY, SECONDARY	TRADE- VOCATIONAL	COLLEGE	UNIVERSITY	ALL POST- SECONDARY	ALL LEVELS COMBINED
CANADA						
1997–1998	100	100	100	100	100	100
1998–1999	103	112	101	104	106	104
1999–2000	102	100	114	117	111	105
2000–2001	102	92	108	123	110	105
2001–2002	103	89	109	123	110	105

Note: Since the series for Nunavut starts in 1999–2000, the calculation for Northwest Territories and Nunavut is for the period 1999–2000 to 2001–2002 only (1999–2000=100).

Table source: *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program*. Council of Ministers of Education, Canada and Statistics Canada: Canadian Education Statistics Council. Catalogue No 81-582-XIE, 2006

FACTORS FOR SUCCESS

Canada's spending on PSE is high—at least by international standards. On a per-student basis, Canada has one of the highest levels of public investment of the OECD countries. There have also been new investments in infrastructure and additional support for research and development.

With a few exceptions, public expenditures on PSE—as a proportion of overall social spending—remained stable throughout the 1990s despite heightened competition with health care and other sectors. Expenditures began to trend upward in the early part of the 21st century, reaching 6.5% of overall social spending in 2006, compared with an average of 5.5% during the previous decade.

POSITIVE DEVELOPMENTS AND TROUBLING TRENDS

Rising tuition rates

Tuition fees are a considerable cost that affects the learner's decision to attend PSE. While increases in tuition fees have abated in recent years, these have nonetheless continued to increase faster than the rate of inflation. Some provinces have imposed controls on tuition increases, other provinces have allowed institutions to set their own rates, which led to some individual faculties raising significantly their rates, namely in dentistry, medicine and law. Tuition rates at the college level remain at roughly half the fees of undergraduate university programs.

Shift toward private funding of PSE

Although public expenditures on PSE have remained stable over the last decade, indices of change in public and private expenditures suggest that the relative share of PSE funding is shifting toward private financing of PSE. Data show larger increases in private expenditures on PSE specifically, where in 2002–2002, the index for individual support of university expenditures increased at a higher rate than the public index, signalling that the funding burden is shifting to individuals, rather than the government.

Rising student debt

Among the most important factors facilitating access to PSE is assurance of affordability to learners and manageability of student debt. Although the cost incurred by individuals to pursue PSE studies can be viewed as an investment in future career and life opportunities, debt levels are rising rapidly. There is concern that high levels of debt may inhibit access to and persistence in PSE as they may deter individuals from pursuing PSE, particularly those who are debt averse. More importantly, high debt loads will further reinforce the already negative perception that many members of under-represented groups, especially low-income, have about PSE affordability.

The debt load for university students more than doubled over the last 15 years. In addition, the proportion of undergraduates who borrowed increased significantly from 45% in 1995 to 59% in 2006. This trend also affected college students who are accumulating more debt. Data reveal that the percentage of those with a debt level of more than \$15,000 upon graduation increased by two-thirds between 2003 and 2006.

- 1 Educational Policy Institute. *Quality measurement, quality assurance and quality assessment. Current practices and next steps in Canada*. Unpublished paper prepared for the Canadian Council on Learning (Toronto: 2007).
- 2 Lapointe, M., et al. *Looking ahead: A 10-year outlook for the Canadian labour market (2006-2015)* (Ottawa: 2006).
- 3 Ibid.
- 4 Ibid.
- 5 Ibid. p 58.
- 6 Mackenzie, Hugh. *Funding Postsecondary Education in Ontario: Beyond the Path of Least Resistance*. Ontario Coalition for Postsecondary Education (Ottawa: 2004).
- 7 Lapointe, M., et al. *Looking ahead: A 10-year outlook for the Canadian labour market (2006-2015)* (Ottawa: 2006) p. 2.
- 8 OECD, *Education at a Glance*, (Paris: 2005), p. 407: The typical graduation age is the age at the end of the last school/academic year of the corresponding level and program when the degree is obtained. The typical age normally corresponds to the age of graduation.
- 9 Auriol, L. *Labour-Market Characteristics and International Mobility of Doctorate Holders: Results for Seven Countries*. STI Working Paper 2007/2 (Paris: 2007).
- 10 Ibid.
- 11 OECD 2007 Factbook (Paris: 2007): A patent family is defined as a set of patents taken in various countries (i.e., patent offices) to protect the same invention. Triadic patent families are a set of patents taken at all three of these major patent offices—the European Patent Office (EPO), the Japan Patent Office (JPO) and the United States Patent and Trademark Office (USPTO).
- 12 Council of Canadian Academies (CCA). *The State of Science and Technology in Canada* (Ottawa: 2006).
- 13 Ibid.
- 14 Industry Canada. *Mobilizing Science and Technology to Canada's Advantage* (Ottawa: Government of Canada, May 2007).
- 15 Public Health Agency of Canada (PHAC). *Toward a Healthy Future: Second Report on the Health of Canadians* (Ottawa: 1999).
- 16 OECD. *Society at a Glance: OECD Social Indicators* (Paris: 2006).
- 17 Van Vught, F.A. and D.F. Westerheijden. "Towards a general model of quality assessment in higher education," *Higher Education*, 28(3) (1994). pp. 355–371.
- 18 Oldford, S.A. "Exploring options for institutional accreditation in Canadian post-secondary education," *School of public administration* (Victoria, B.C.: University of Victoria, 2006).
- 19 Ibid.
- 20 Ibid.
- 21 Berger, J., A. Motte, and A. Parkin. *The Price of Knowledge: Access and Student Finance in Canada – Third Edition* (Montreal: Canada Millennium Scholarship Foundation, 2007) p. 8.
- 22 Lambert, M., et al. *Who pursues postsecondary education, who leaves and why: Results from the Youth in Transition Survey*. (Ottawa: Human Resources and Skills Development Canada and Statistics Canada, 2004). Catalogue No 81-595-MIE2004026.
- 23 In the late 1980s, Human Resources Development Canada (HRDC) commissioned Statistics Canada to conduct a survey to identify the characteristics and consequences of leaving school.
- 24 The *School Leavers Follow-up Survey* gathers information on the respondents' labour-market status and education/training beyond high school.
- 25 Grayson, J. Paul and Kyle Grayson. *Research on Retention and Attrition* (Montreal: Canada Millennium Scholarship Foundation, 2003).
- 26 Lambert, M., et al. "Who pursues postsecondary education."
- 27 Berger, J., Motte, A., & A. Parkin. *The Price of Knowledge*, p. 8.
- 28 Canada Millennium Scholarship Foundation. *The Class of 2003: High School Follow-Up Survey* (Montreal: 2007).
- 29 From an international comparative point of view, post-secondary non-tertiary programs straddle the boundary between upper-secondary and post-secondary education, even though they might clearly be considered either upper-secondary or post-secondary programs in a national context. Although the content of these programs may not be significantly more advanced than upper-secondary programs, post-secondary non-tertiary programs serve to broaden the knowledge of participants who have already gained an upper-secondary qualification. The students tend to be older than those enrolled at the upper-secondary level. Typical examples of such programs are trade and vocational certificates in Canada and the United States (*Education at a Glance* 2006).
- 30 OECD. *E-Learning in Tertiary Education: Where Do We Stand?* (Paris: 2005).
- 31 Ibid.
- 32 Ibid, p. 14.
- 33 Charpentier, M., C. Lafrance, and G. Paquette. *International e-learning strategies: Key findings relevant to the Canadian context*. Unpublished paper commissioned by the Canadian Council on Learning (Ottawa: 2006).
- 34 Wihak, C. *State of the Field Review: Prior Learning Assessment and Recognition*. Submitted to the Canadian Council on Learning (Ottawa: 2006). Available at: <http://www.ccl-cca.ca/CCL/Reports/StateofTheFieldReview/>.
- 35 Canadian Council on Learning. "Good news: Canada's high-school dropout rates are falling," *Lessons in Learning*, (Ottawa: Dec. 16, 2005).
- 36 Ibid.
- 37 Acumen Research Inc., *Ontario College and University Applicant Surveys* (Montreal: Canada Millennium Scholarship Foundation 2004–2006).
- 38 Ibid.
- 39 Berger, J., A. Motte, and A. Parkin. A. *The Price of Knowledge*, p. 8.
- 40 Association of Universities and Colleges of Canada. *Trends in higher education: Volume 1 – Enrolment* (Ottawa: 2007).
- 41 Usher, A. and S. Junor. *The Price of Knowledge: Access and Student Finance in Canada* (Montreal: Canada Millennium Scholarship Foundation, 2004).

- 42 Statistics Canada. *Longitudinal Survey of Immigrants to Canada Progress and Challenges of New Immigrants in the Workforce* (Ottawa: 2005). Catalogue No 89-615-XIE.
- 43 Frenette, M. and R. Morissette. *Will they ever converge? Earnings of immigrant and Canadian-born workers over the last two decades* (Ottawa: Statistics Canada, 2003). Analytical Studies Branch Research Paper Series, No 215, Catalogue No 11F0019MIE.
- 44 Myers, K. and P. De Broucker. *Too Many Left Behind: Canada's Adult Education and Training System* (Ottawa: Canadian Policy Research Networks, 2006) Research Report W34.
- 45 Coulombe, S., Tremblay, J.F., and Marchand, S. Literacy scores, human capital and growth across fourteen OECD countries, (Ottawa: Statistics Canada, 2004) p. 7. Catalogue No 89-552-MIE.
- 46 Myers, K. and P. De Broucker. *Too Many Left Behind*.
- 47 Peters, V. *Working and Training: First Results of the 2003 Adult Education and Training Survey*. (Ottawa: Statistics Canada, 2004). Education Skills and Learning Research Papers, Catalogue No 81-595-MIE2004015.
- 48 Ibid.
- 49 Ibid.
- 50 Canadian Council on Learning. "Understanding the need for targeted workplace learning strategies," *Lessons in Learning*. (Ottawa: Feb. 17, 2006). Available at: <http://www.ccl-cca.ca/CCL/Reports/LessonsInLearning>. Accessed July 3, 2006.
- 51 In the *Learning a Living: First Results of the Adult Literacy and Life Skills Survey*, Table 4.9 and Table 4.11 provide some international comparative data regarding employer-supported education and training by "literacy engagement at work"—a term meant to convey the level of literacy and numeracy skills required of workers. It is evident here too that employers are more inclined to sponsor white-collar workers. In both Canada and the U.S., employers were equally inclined to support workers at the lowest skill level but employer support for all other levels in Canada was much higher than in the U.S.
- 52 Council of the Federation. *Discussion Guide: The Future of Post-secondary Education and Skills Training in Canada*. (Ottawa: 2006). Document prepared for Competing for Tomorrow: A Post-secondary Education and Skills Summit.
- 53 Ibid.
- 54 Ibid.
- 55 Available at the Canadian Council on Learning's website: www.ccl-cca.ca
- 56 Sussman, D. "Barriers to job-related training," *Perspectives on Labour and Income*, Vol. 3, No 3. (Ottawa: Statistics Canada, 2002). Catalogue No 75-001-XIE.
- 57 Myers, K., and P. De Broucker. *Too Many Left Behind*.
- 58 Ibid.
- 59 Berger, J., A. Motte, and A. Parkin. *The Price of Knowledge*.
- 60 Ibid.
- 61 Canadian Council on Learning. "Apprenticeship training in Canada," *Lessons in Learning* (Ottawa: July 2006).

Overview

CONTEXT FOR A PAN-CANADIAN DATA STRATEGY

A national post-secondary strategy should possess three essential characteristics: clearly stated objectives, both general and for specific periods of time; measures to assess achievement of objectives; and a systematic goal of cohesion and coherence among all the facets—as is the case in the EU and other developed countries.

Canadian Post-secondary Education: A Positive Record – An Uncertain Future. Canadian Council on Learning, 2006

A remarkable aspect of post-secondary education in Canada is the fact that existing data sets and information sources do not allow for a comprehensive assessment of the strengths and contributions of the sector and the significant investments made annually by governments and learners, despite the sector's importance to society.

Recognizing the urgent need to address these gaps in knowledge, the Canadian Council on Learning has worked to develop a pan-Canadian data strategy for PSE. CCL considers that a data strategy is an essential prerequisite to understanding how PSE can most effectively contribute to Canada's future prosperity. Without such a strategy, coherence, co-ordination and comparability in PSE across the country will be compromised. Moreover, Canada's capacity to compare the conditions and performance of its PSE sector with its international competitors will not be possible.

Part II presents both a PSE data strategy and a number of issues to be addressed that are essential for implementation of such a strategy. The elements of a data strategy for PSE in Canada—an approach to data definition, collection and use—are framed by the eight goals and objectives for PSE that were advanced by the Canadian Council on Learning in its 2006 report on Canadian post-secondary education. That report stressed that Canada lacks national-level mechanisms to ensure coherence, co-ordination and comparability for PSE and identified the need to put in place the information base required for effective management and evolution of the PSE sector:

Canada needs to develop a clear set of indicators and measures to allow for continuous assessment of performance and progress made toward realization of those goals and objectives at the national level. This requires the definition and development of a consistent, comprehensive, robust and comparable set of measures and data, and the collection and analysis of such data in a manner that enables monitoring of change over time as well as comparison with other countries.

Canadian Post-secondary Education: A Positive Record – An Uncertain Future. Canadian Council on Learning, 2006

"Measuring What Canadians Value" expands on the requirements for information related to each of these goals, and establishes several immediate priorities in order to inform public policy, learner choice, and institutional governance. It also expands on the comments of the 2006 Canadian Council on Learning's report with regard to the need for Canada to develop mechanisms at the pan-Canadian level to provide for the necessary coherence, coordination and comparability in data collection and use, while respecting provincial responsibilities and institutional academic autonomy.

WHO ARE THE USERS OF A DATA STRATEGY?

A pan-Canadian data strategy serves the interests of a range of users who are seeking reliable and timely information on the nature and performance of some aspect of the PSE sector, often in comparison with the performance of other institutions or other countries.

Defining, measuring and improving quality is a critical task for all higher education institutions and a legitimate concern of the stakeholders and governments who fund them.

Ontario – A Leader in Learning, February 2005, p. 2

Key users or clients of PSE data include:

- **Governments** which seek information on international comparability of performance (including learning outcomes), the social and economic return on their investments, and insights on how to refine policies and programs for better efficiency and effectiveness. Governments are also increasingly interested in the role and impact of education in the globalized learning economy, including the broader social goals of education systems (and learning in general).
- **Citizens** who seek accountability on the performance of the sector as a whole and assurance on the alignment of public expenditures with public benefits.
- **Boards of governors and institutional managers** who seek information on institutional performance, competitiveness and operational efficiency, usually in a comparative context. Institutions are also increasingly concerned with accountability to their diverse stakeholders.

PART II MEASURING WHAT CANADIANS VALUE: A PAN-CANADIAN DATA STRATEGY FOR POST-SECONDARY EDUCATION

- **Learners and their families** who seek information on whether a specific program or institution will provide both a rich learning or training opportunity, the knowledge, skills, and abilities learners need in the labour market and as citizens, as well as the institution's track record on graduation rates and employment.
- **Researchers** who are interested in understanding the relationships between educational practices and social, economic and learning outcomes in order to inform educational practice and policy.

TOWARD A FRAMEWORK FOR CANADIAN PSE DATA

... there is widespread agreement about the difficulties in the current post-secondary system data collection. There is considerable controversy about how this can be remedied.

Campus 2020, British Columbia, April 2007

A meaningful data strategy is founded on the priorities, values and expectations of the stakeholders and users of the data. As such, broad acceptance of the eight goals and objectives defined by the Canadian Council on Learning for Canadian PSE delivers an opportune platform from which to build such a strategy. It could provide a means to link data, indicators and data collection instruments with the PSE sector goals and expectations, policy issues, and key research questions.

Three sets of questions have guided the development of the data strategy:

1. **The policy and research questions/conceptual framework** What do we want to know? What are the key system conditions, aspects of performance, and characteristics that are important to users/clients? What do we know about how PSE contributes to social, economic, and learning outcomes and through what mechanisms? What factors mediate these relationships? What can indicators tell us about these questions?
2. **Measurement issues** Are the available data and indicators useful for illuminating the policy and research questions (direct and proxy measures)? Would the indicators provide information we can believe (e.g., robust and comparable)? What do the data mean in different contexts (e.g., among regions of Canada and internationally)? What are the major data gaps?
3. **Collection issues** How do we access the data and produce the indicators? What are the quality and availability (including sustainability of financing) of data from existing sources and instruments? What are the priority improvements/refinements? How feasible and cost-effective is it to address the priority data gaps?

This paper focusses on the structure of and conditions for a robust set of PSE indicators that describe and report on the PSE sector. The data strategy comprises a number of components:

1. PSE sector definition

- PSE sector goals and objectives (and associated policy and research questions)
- Defined classifications for PSE institutions (essential for contextualizing any data or indicators)

2. PSE data elements (situated in a framework defined by the goals/objectives and the major policy issues and research questions)

- Management statistics
- Contextual data (some may be qualitative)
- Key indicators
- Benchmarks
- Targets
- Special data collections

3. Criteria for choice of data

4. PSE data infrastructure

- The conceptual model—integrated and holistic
- Information collection and management standards, including policies with regard to privacy and access
- Data collection instruments, and all of the associated technical considerations

5. Systems for data analysis/dissemination/use

- Facilitating access to data
- Research capacity and activity—effective access to and engagement by researchers focussed on issues relevant to the performance of PSE
- Effective modes of dissemination of the outcomes to decision makers, practitioners and the public

6. A process for getting where we want to go

- Human Resources and Social Development Canada should work in close collaboration with Industry Canada, Statistics Canada and other stakeholders to ensure the delivery of the PSE data strategy.
- The federal government should ensure the adequacy of the PSE information base be kept in the public eye through regular public reports—a public form of external audit and evaluation. Stakeholders need to be involved to ensure that the PSE database reflect the public interest.
- A pan-Canadian forum for discussion among stakeholders of priorities and the effectiveness of the PSE sector.
- Specific operational actions that will ensure key data issues are advanced.

1. THE PSE SECTOR IN CANADA— THE UNIVERSE UNDER DISCUSSION

The PSE sector across Canada is in a period of significant change. Knowledge and talent are seen as key to both successful societies and economic prosperity in the 21st century. The PSE sector is pivotal in providing an environment conducive to nurturing the requisite knowledge and talent, and in mobilizing that knowledge and talent for societal benefit. In addition to its longstanding commitment to providing Canadians with a liberal education in the arts and sciences, the PSE sector is being challenged both to develop knowledge and to train people in ways that allow them to create, access, and use knowledge that is increasingly multi-disciplinary and global in context. The PSE sector is also being called on to be an active player in the community and to work in partnership with public and private sectors. The outcome has been manifested in new funding and accountability regimes, structural change triggered by provincial governments, and the growing presence of private, for-profit providers.

Traditional delineations between universities and colleges are blurring as degree-granting powers are being given to colleges and new institutions with dual mandates are emerging. Provincial engagement in career colleges is under review. Existing institutions are being merged or severed one from another.

A recent paper by Statistics Canada presented a systematic typology for the sector and identified a number of key defining characteristics.¹ Continuation and pan-Canadian acceptance of this important work are necessary if the data strategy addressed in this paper is to succeed. While this is still a work in progress, it is useful since it captures the current definition of the PSE sector by framing the discussion on the collection of relevant system data and by enumerating the institutions in a 2003 registry, many of which have not been captured by pan-Canadian data collections. Seventy-three degree-granting institutions and 139 colleges and institutes in the following table have not been part of Statistics Canada surveys in the past.

Table 2.0.1 **Number of post-secondary institutions in Canada based on the typology proposed in the 2003 Orton paper**

TYPE OF PSE INSTITUTION	SUB-TYPE	NUMBER IN STC INSTITUTIONS REGISTRY 2003
University and degree-granting		203
	Degree-granting college or institute	4
	Primarily undergraduate	41
	Comprehensive	15
	Medical doctoral	15
	First Nations and Métis	3
	Special purpose	125
Colleges and institutes		317
	Degree-granting college or institute	31
	Multi-purpose	133
	First Nations and Métis	10
	Special purpose	142
Career colleges		497
	Multi-purpose	137
	Special purpose	360
School board adult education		417
Government-direct		18
	Apprenticeship	13
	Special purpose	1
Consortia		2
<i>Registry includes public, not-for-profit and private providers; excludes in-house training activities offering training exclusively to own staff.</i>		
Source: Orton, L. A new understanding of postsecondary education in Canada: A discussion paper. Statistics Canada: Culture, Tourism and the Centre for Education Statistics Division. Catalogue No 81-595-MIE—No. 011 (Ottawa: 2003).		

2. PSE DATA ELEMENTS

The data elements of a data strategy can be organized in a number of ways. For the purposes of this data strategy a number of specific types of data are defined and used:

- Management statistics
- Contextual data
- Indicators
- Benchmarks
- Targets

Underlying the development of indicators is the requirement for routine descriptive data—the foundational information source, often termed **management statistics** that may be collected as routine administrative data by institutions and government agencies against a pan-Canadian standard or through specially structured surveys, again using pan-Canadian standards. Such data include raw student and faculty counts and revenue and expenditure data. These are used for routine monitoring and also in more complex indicators.

Contextual data are statistics from fields other than education that are linked to the educational statistics in order to provide policy-relevant indicators. They may also be qualitative data that provide essential information on the context in which the core data and indicators are developed and interpreted. Such contextual statistics include demographic, economic, health, quality of life, science & technology, cultural and labour force data, and data on public opinion.

An indicator is “a statistic (or set of statistics) that provides a succinct description of the condition or performance of a system (e.g., institution, service, economy, society). Indicators can describe inputs, processes, or outputs/outcomes. They can be used to provide evidence of how conditions or performance (e.g., efficiency and cost effectiveness) vary over time (by comparing indicators at different points in time) or across a system (by comparing indicators for different entities ... within a system).”²

Development and interpretation of such indicators can be controversial because of inadequacies of data, subjectivity of some of the measures, and compound nature of the indicators. Such controversy needs to be addressed directly, rather than treated as a reason not to engage in measures of condition and performance. There is also a natural tension between the need for accuracy and the need for simplicity that requires creativity in the conceptualization and reporting of standards. Detailed tables of numbers will not be meaningful to the lay reader where clarity of message is key, but are necessary for solid research and analysis that underpins development of the message.

The next two categories of data are **benchmarks** and **targets**. In some jurisdictions (e.g., the European Union), the terms **benchmarks** and **targets** tend to be used interchangeably. This paper purposely distinguishes between the two terms.

A **benchmark** is defined as the average value of a system performance or condition that provides a meaningful comparison for entities within that system. There are a number of PSE-related attributes that are amenable to full pan-Canadian and international comparisons or benchmarks (e.g., adult literacy levels and percentage of the population holding doctorate degrees). In such circumstances the use of such international comparators can be very effective. In other cases, a more limited comparator set—or benchmark—may be appropriate (e.g., those used as measures of student engagement in the National Survey of Student Engagement NSSE).

Targets, on the other hand, are a numerical expression of what nations and institutions consciously choose as their aspirations for the future. Choosing a ‘target’ is a political and a resource consideration and should be undertaken only after a careful examination of the priorities and the foreseeable costs of reaching the target.

In any data strategy there is also a need for **special data collections**—focussed and time-limited collections of data that allow researchers and analysts to address specific policy questions, to identify and track trends, to illuminate correlations and causal relationships, and to support or challenge pre-conceived theoretical frameworks. Canada needs to develop improved means to coordinate such research activities with the larger pan-Canadian data strategy.

Benchmarks and targets as a part of the pan-Canadian data strategy

There are many public pressures for “league tables”—collections of highly aggregated data that cover a large number of PSE institutions (e.g., Maclean’s). Such tables often integrate diverse factors that may or may not pertain to all institutions or be policy relevant. Rather than focusing on league tables, an effective PSE data strategy, taking lessons from the public reporting of key data from the System of National Accounts, would use **benchmarks** that capture well understood phenomena. A limited number of key strategic indicators are selected that provide information about the condition or performance of regions and PSE providers and can be compared with international or pan-Canadian benchmarks. Some benchmarks might well be context, dependent (e.g., graduation rates) and in this context, comparison of like entities to sub-sector averages³ is likely more constructive.

The set of key benchmarks would focus on important dimensions of the system condition or performance that would communicate most effectively the areas for public and institutional attention. To this end, a framework for developing such benchmarks could be structured along the following lines, with benchmarks limited to 10 or fewer key issues, where major progress is needed and public exposure of the problems is critical:

Stocks of learners

- High-school completion rates
- Aboriginal high-school completion rates

Flows

- PSE graduation rates
- PSE attainment levels for the Canadian population
- Adult participation in lifelong learning

Outputs

- Literacy levels
- Doctoral holders per 1,000 population
- Math and science technology graduates—bachelors and doctorate

International experience is that the use of *targets* as part of a pan-Canadian data strategy can be effective for mobilizing public support and stakeholder involvement—but that success requires intensive prior discussion with stakeholders as to why a specific situation needs to be improved and why a specific target is required. In this context, the use of a limited number of pan-Canadian benchmarks can be an effective strategy to advance public discussion of targets.

3. CRITERIA FOR THE CHOICE OF DATA/INDICATORS

For a data and indicator set or strategy to be useful, a number of conditions are required:

- **Relevance** What is measured must be of importance to a user, respond to an information need, illuminate a policy issue, provide explanatory insights. Priorities may have to be set.
- **Validity** The indicator is either a direct measure of the condition, or performance of interest, or a meaningful proxy for it.
- **Clarity** The indicator is easily understood and unambiguous in interpretation.
- **Reliability and consistency of reporting/comparability** There is an agreed upon or common definition/understanding that can be used to produce indicators that are comparable among reporting entities over time.
- **Feasibility** Data should be accessible and affordable to collect.

- **Timeliness** Data should be available in a time frame that makes them useful for the user/client (e.g., student choice or policy action).
- **Accessibility** Data should be easily accessible to the client/user.
- **Comparability** Wherever possible the data should be derived in a way that is comparable with international data standards and collections (e.g., OECD).

However, Canada is far from being in a situation where such a set of indicators exists.

...the fact remains that no comprehensive cross-Canadian database built on common definitions and common timeframes currently exists.

Campus 2020 – British Columbia, April 2007

In recent years, there have been many individual initiatives within the PSE sector to improve information, data availability and performance reporting, including the development of some common definitions and standards for data collection and reporting among subsets of the PSE universe (e.g., the G-13 universities). In addition, many Canadian PSE institutions are now using common data-collection platforms such as the National Survey of Student Engagement (NSSE) and the Collegiate Assessment Survey (CLA). These actions have resulted in improvements in data availability and robustness at institutional and regional levels, and within some sub-groups of the larger PSE sector.

However, some problems remain:

- Data gaps, e.g., a lack of college faculty numbers and a lack of data on private providers;
- Timeliness, e.g., time frame to access the outcomes of the National Graduate Survey;
- Diverse approaches to and formats for reporting, e.g., reporting on the outcomes of the National Survey of Student Engagement (NSSE);
- Lack of inter-institutional comparability; and
- Lack of a common data strategy and set of common data standards.

There is no common, systematically classified list of all public and private post-secondary institutions in Canada—analogous to and with cross-comparisons to the Carnegie classifications in the U.S.—and the programs they offer. Such a structure is essential to situate indicators in the context of the institution's circumstances. There is a lack of a basic common understanding about what the terms *degree*, *diploma* or *certificate* mean, which makes interpretation of the existing data difficult to impossible (this is in stark contrast with the emerging use of common standards in Europe from the Bologna process).

PART II MEASURING WHAT CANADIANS VALUE: A PAN-CANADIAN DATA STRATEGY FOR POST-SECONDARY EDUCATION

The 2007 edition of *Education at a Glance* (OECD) illustrates this problem. Canadian data for fully 61% of the 84 PSE indicators are either missing or incomplete, in particular the data relating to financial and human resources invested in education.

If Canada is to tackle these challenges effectively and address the gaps identified in the 2006 Canadian Council on Learning's report, a number of other key building blocks are required. These are addressed in the next section.

Key building blocks

In addition to the definition of the PSE sector and key data elements, three other sets of issues are key:

- A robust pan-Canadian PSE data infrastructure;
- Effective systems for data analysis/dissemination/use; and
- A process for getting where we want to go.

These are discussed in the sections below.

4. THE PSE DATA/INFORMATION INFRASTRUCTURE

The *PSE data/information infrastructure* represents the *facility* necessary to develop robust data under conditions by which they can be used effectively for research, analysis and policy-making—the equivalent of a large-scale physical facility in natural science. Such an *infrastructure* comprises

- A conceptual model;
- Common data and a common data dictionary; and
- Robust data-collection instruments.

The conceptual model

A conceptual model links information/indicators to each of the eight goals/objectives. This framework not only allows for insights on condition and performance, but also becomes the focus of critical attention: researchers assess its validity in analyzing data that emanates from data collection activities. Work is also required on innovative indicators where the current basket of indicators reflects what is available rather than what should be measured in the context of the conceptual framework. Details on the policy and research issues that relate to each of the eight Canadian Council on Learning goals and objectives are identified later in this paper.

Common data and common data dictionary

This element comprises standardized data elements and definitions for elements captured in the PSE and related databases, allowing inter-connections for analysis.

Based on experiences with the Canadian Association of University Business Officers (CAUBO) data on university

finances—and the contention that is associated with most public data—this lack of common data and a common data dictionary is the largest stumbling block to delivering a successful data strategy in Canada. Yet, without such a base, the data strategy will be stillborn. It is equally important that any data standards be developed with international standards and conventions in mind (e.g., OECD) and every effort be made to ensure comparability.

This paper suggests that an investment be made to develop, as a key priority, a common data set and a data dictionary that will be applied across the PSE sector. Such an approach needs to ensure there is adequate consideration of data quality and robustness.

Data collection instruments

The data strategy requires provision of a cost-effective and evolving set of data-collection instruments that are developed in an integrated manner—regardless of how they are delivered. These instruments need to be implemented in a timely fashion that reflects best practices internationally and that provide significant insights on key policy and research issues.

Many sources of information exist, but these are not fully strategic: they do not provide full coverage or answer every important question. Also, there are disturbing gaps in the collection, completeness and analysis of data. The lack of data on adult education and on private providers is particularly troubling. An equally serious roadblock is the lack of an individual student identifier that would allow the tracking of the learner's passage through learning and work.

However, many key instruments exist that are critical parts of the solution, but that need attention (and in some cases, these instruments do not even have secured funding), for example:

- Post-secondary Student Information System (PSIS), which is supposed to include college faculty data, but which even in the last iteration does not.
- Labour Force Survey (LFS), a solid vehicle with monthly production, but which would benefit from a stronger educational core such as a set of new questions.
- National Graduate Survey (NGS), which would benefit from being run more often than every five years and should have a longer longitudinal baseline (e.g., to 10 years).

Equally important, it is apparent that not all institutions fulfil their responsibility to respond fully to some pan-Canadian data collection activities managed by Statistics Canada (e.g., Post-secondary Student Information System). The comparability, validity and usefulness of such

instruments are contingent on their completeness, and such non-compliance by institutions undermines the purpose of the data collection.

Based on current information, Statistics Canada is not invoking its mandatory powers to resolve this situation. This report suggests that there are two options with respect to ensuring the integrity of the data.

1. Statistics Canada could publish an annual report on the state of responses to its data collection requirements. Also, there could be communication with the Association of Universities and Colleges of Canada (AUCC) and the Association of Canadian Community Colleges (ACCC) on which institutions are in default and the consequences thereof.
2. The federal government could explore with provinces the possibility of making increased transfers to provinces for PSE, contingent on satisfactory compliance, and seek the engagement of the relevant provincial authorities in facilitating compliance.

Whatever the approach to the development of a data strategy, consideration should be given to the establishment of such a forum, which could also deal with “who pays”. While data collection and analysis are expensive, there is some validity to the argument that the current situation of uncoordinated reporting requirements and activities, and decisions taken in the absence of robust nationally comparable evidence is even more expensive.

Attachment 01 contains an inventory of existing instruments and owners/responsibility centres, including comments on the core data elements, conditions and restraints on data interpretation and the current state of financing/sustainability.

5. SYSTEMS FOR DATA ANALYSIS/DISSEMINATION/USE

There is little value in data collection without systems for *data analysis, dissemination and use*. Three particularly important components of the data strategy entail:

- Facilitating access to data;
- Mobilizing research and analysis capacity; and
- Ensuring effective modes of dissemination.

Facilitating access to data

In recent years, it has become a public issue that relevant data needs to get into the hands of researchers through a number of distinct actions, in particular:

- The Data Liberation Initiative (DLI), which made the public data use files of Statistics Canada accessible for free to PSE researchers through a special licensing agreement; and

- The Research Data Centres (RDC) initiative, funded by Canada Foundation for Innovation (CFI), Social Sciences and Humanities Research Council (SSHRC) and Canadian Institutes of Health Research (CIHR), which makes available to qualified researchers the micro data sets of a number of key Statistics Canada surveys⁴ in secure locations across Canada.

There are, however, continuing concerns that there is not timely or easy access to many data sets that would be useful to researchers and decision-makers.

Mobilizing research and analysis capacity

Too frequently, existing data sets are not transformed in a timely way into useful information for decision-makers and managers. It is not clear if this is Statistics Canada’s responsibility and, if not, whose responsibility is it, and how should this responsibility be coordinated? Would it be better to collect fewer data and make better use of what we have now?

Two initiatives offer some promise if used in a more effective way:

- The Canadian Education Statistics Council (CESC)/Pan-Canadian Education Indicators Program, which has commissioned research on issues related to education (although not with a strong focus on PSE); and
- The Research Data Centres, which have the potential to mobilize much more extensively than at present the interests of the academic research community, if there were a strong demand pull from users and clear articulation of the specific policy questions.

There are, however, some bright spots. The Canada Millennium Scholarship Foundation (CMSF) has commissioned and carried out some excellent research on student access and financing using existing data and commissioned surveys to fill in the gaps. What can be learned from this model?

Effective modes of dissemination

A key part of the data strategy is dissemination of the outcomes of data analysis to policy-makers, practitioners and the public. Even with a strong database, there is a continued need for more capacity to distill data into policy-relevant information on which decision-makers and managers can act.

A high public profile about the condition and performance of the PSE sector creates greater public awareness about the importance of public and private investment in PSE and creates a natural feedback mechanism with the users of data whether they are policy-makers, practitioners or learners.

It is also interesting to speculate on why education statistics do not normally receive the same attention as labour market and economic statistics which appear at regular intervals with much media coverage.

The Canadian Council on Learning has played a leadership role recently in painting a public portrait of Canadian PSE by pulling together a number of disparate sources of information, even while identifying data gaps. The *Campus2020* report commissioned by the Province of British Columbia identifies the lack of a comprehensive pan-Canadian database on PSE and argues for the need to support good planning with good information.

6. A PROCESS FOR GETTING WHERE WE WANT TO GO

The final component of the data strategy is one of process—a means of taking us from where we are to where we want to go. Three aspects of that process are key:

1. Keeping the adequacy of a PSE information base in the public eye through regular public reports;
2. A process for stakeholder engagement and establishment of priorities; and
3. Operational actions that will ensure the priority elements of the data strategy are tackled.

Regular public reporting

It is essential to keep the adequacy of a PSE information base in the public eye through regular public reports—a public for audit and evaluation. This should be done in collaboration with stakeholders to ensure that the PSE database reflects the public interest.

A process for stakeholder engagement and identification of priorities

The development and effective implementation of a PSE data strategy is a complex process. Experience has shown that there needs to be an active engagement of stakeholders—people and organizations with a professional, personal, and/or financial stake in the PSE sector.

This data strategy proposes that there be a continuing pan-Canadian forum for discussion among stakeholders of the priorities of the PSE data system. Such a forum should include various stakeholders, such as educators, learners, institutions, policy-makers and employers as well as the statistical experts and researchers who are important sources of educational and contextual data for insights.

Inevitably, there will be differences of opinion regarding the key policy questions and the type of information that

is needed and cost effective. But, the development of a common understanding of the diverse stakeholders' interests is a critical part of developing the support to tackle issues around revising existing instruments, setting priorities for funding, and devising any necessary changes in the organizational structure of a pan-Canadian data system.

There is a good chance that a single forum will not be adequate and that there would be value in regional sub-groups. However, this paper recognizes the particular importance of creating at least one pan-Canadian venue for such discussions.

Further, specific data instruments will need panels of experts convened more frequently than once a year to ensure these instruments are as comprehensive and useful as possible.

Specific operational actions to ensure key data issues are advanced

Even with the need to engage stakeholders in the larger questions around the implementation of the proposed data strategy, this agenda will take time, and there is a need to move rapidly. Already, there are a number of items that have been identified as critical gaps in the current system. There should be immediate action to address these gaps through working groups tasked with reporting within a limited time on necessary actions. Among these are:

- Development of a unique student identifier
- Collection and reporting of faculty numbers for colleges
- Data on adult education
- Data on private providers

There are also many strong data initiatives underway at regional or sub-group levels (e.g., the G-13 universities) on which broader inter-institutional agreement on standards would provide early wins for the pan-Canadian data strategy.

INTERNATIONAL EXPERIENCES

Countries vary enormously in their approach to data collection and use—with the organization of statistical systems for PSE data reflecting past practices and the distribution of roles and responsibilities among stakeholders within each country. What is increasingly clear is that structured engagement of both statistical expertise and subject-matter expertise is key for a strong data system, but that there is no single “blueprint” for success. In a 2000 document examining international experiences with national systems of criminal justice statistics,⁵ a powerful analysis of both centralized and decentralized

systems revealed the fact that any national system needs to focus on means to overcome the challenge of distance and connection among the substance experts, the statistical experts and the policy-makers.

But, even within a diverse and complex field in which few countries have clearly articulated national data strategies for PSE, Canada's record is woefully inadequate. While all European OECD countries have been harmonizing their data collection and reporting mechanisms to meet the OECD requirements for research and analysis on education, Canada is able to provide only a very limited number of the basic data tables required for the 2007 Education at a Glance. Out of the 84 PSE-related indicators, Canada is missing 41 (49%) and 12% are incomplete. Basic data, such as the most recent figures for expenditures on education or the most recent numbers of students enrolled in post-secondary education by age group, are simply not available.

Of the 30 OECD countries, 21 European countries are in full compliance with OECD data requirements. Non-OECD countries, such as Israel and the Russian federation, are gradually harmonizing their data collection mechanisms in order to be able to meet OECD reporting requirements. Canada's data commitment is not only to its citizenry, but also to the international community. Our inability to report timely, reliable and internationally comparable data puts Canada in a disadvantaged position compared to other international jurisdictions.

It is also striking that other nations, recognizing the centrality of PSE to social and economic sustainability, are making structural changes to improve the quality of reporting. For example, in 2004, in the U.K., the Higher Education Statistics Agency (HESA) took over the production and publication of performance indicators from the Higher Education Funding Council for England (HEFCE). The outcomes were: a) earlier publication, because it became a single source of data collection, and b) more reliable data providing a means for institutions to confirm their data were correct.

In other nations, there are equally passionate calls for action to develop more robust systems of PSE data. The following quote is from a 2005 letter from the State Higher Education Executive Officers in the US (SHEEO) to initiate national discussions on higher education:

The absence of accurate, reliable information is a formidable obstacle to educational improvement. All of us with responsibility for performance—at the national, state, and institutional levels—need facts at the state and institutional levels to identify problems, set appropriate goals, monitor performance, and sustain progress.

The existing national post-secondary data system, however, cannot provide accurate information on graduation rates, transfer, net cost, or success in the job market. It falls short because students move among in-state and out-of-state institutions and back and forth between our institutions and the workforce. These individual students cannot be tracked because the current data system relies primarily on information about groups of students enrolled in individual institutions at single points in time. This outmoded system is increasingly incapable of responding to legitimate questions requiring longitudinal data.

2005 Letter from Paul Lingenfelter, President, SHEEO
To Members of the US Senate and House of representatives

What is clear from the experience of all the jurisdictions discussed is that there is a trend toward more consolidation and creation of a national data strategy. Canada lags behind.

CONCLUSION

The success of Canada as a society and an economy is increasingly dependent on a vibrant and effective PSE sector. The Canadian economy is being challenged by the speed of global change and the emergence of new nation states eager to supplant North American and European interests. Two thirds of jobs will require some form of post-secondary qualification. Canada needs to align the education and training provided by Canadian institutions with the workplace and citizenship needs of the future. However, Canada does not have enough information and data in a comparative form to know how well the country is doing, and what issues need to be addressed. A pan-Canadian PSE data strategy forms an essential part of the solution.

1. A skilled and adaptable workforce

WHAT WE ARE TRYING TO ACHIEVE

- Produce a skilled and adaptable workforce to meet the human resource needs of the country in the 21st century
- Ensure effective linkages between post-secondary education and the labour market

POLICY ISSUES

- The supply/demand match/mismatch
- Responsiveness of the overall PSE sector to expressed needs of the learner and the labour market over the short and long term
- Quality and pertinence of labour supply to emerging needs
- Role of PSE in the new economy (being ahead of the curve)
- Recognition and portability of credentials for all learners (within Canada and from abroad)
- Flexibility and adaptability of PSE sector to changing contexts

RESEARCH QUESTIONS

Responsiveness of the overall PSE sector to individual learner needs and aspirations in relation to career choices

Is there adequate choice among vocational and trades training, apprenticeships, and higher learning? Is there effective articulation among all elements of the PSE sector? What is the adequacy of credential recognition among regions of Canada?

The supply/demand match/mismatch

What do we know about labour-market needs, both short term and longer term and how well is that information communicated to learners? What is the suitability of supply in relation to demand, mix of technical skills (e.g., trades) and higher-learning skills (e.g., professional and management)? How is the demand for skilled-trades training managed and are apprenticeship programs meeting the need?

Quality and responsiveness of the overall PSE sector to current and foreseen labour-market needs

Do we have the necessary entry level skills, higher level skills, availability of experienced and credentialed personnel (professional and trades), individual adaptability to work, timeliness of supply, mobility and geographic availability? Are there adequate quality and pertinence of labour supply—diverse and emerging literacies (e.g. traditional literacy, numeracy, and computer literacy), critical and reflective thinking, problem solving, capacity for early productivity and ongoing workplace learning?

Larger societal effectiveness of PSE

How well are PSE learning outcomes equipping individuals with the flexibility and adaptability to deal with a changing labour market and meeting skills expectations over the course of a working life? What do we know about the correlations of PSE attainment with employment, unemployment, type of employment—e.g., precarious work, long-term employability (including movement in and out of the labour force), and underemployment?

Appreciation of different competencies

Is there a common understanding of the competencies needed and supplied by universities, community colleges and other PSE providers (what learners can do and what they know) and are there adequate measurements of how these change over the course of the credential (the value-added by the PSE experience)? Who is measuring this added value and how are they doing it; what does it reveal?

Adult literacy as a competency

To what extent is there an erosion of literacy in the workplace, is this acknowledged as an issue, and what strategies and approaches are effective in addressing it?

Institutional interventions that affect labour-market success

What evidence do we have on the impact and effectiveness of various forms of training and education that connect learners to the workforce (e.g., co-op

programs, internships and service learning)?⁶ Are there other institutional policies and practices that influence the success of learners in the labour market?

Managing change

Given changes in the ethnic and demographic make-up of the labour force and the changing nature of work and employment, how well is the PSE sector as a whole, and its component parts, dealing with these issues and supporting individuals in transition (e.g., the decreasing number of traditional labour-force entrants, the role of the PSE sector in assisting immigrants and non-traditional sources of labour supply, including Aboriginals, persons with disabilities, and older workers)? Are there significant changes in the relative roles of universities, colleges and private educational institutions in supporting a skilled and adaptable workforce?

Immigrant experiences in the workforce

What do we understand about immigrant experiences in the labour market? This information would enhance our understanding of how best to shape program re-

sponses to integrate and maximize the skills and education of recent immigrants. The results of Statistics Canada's planned follow-up of the 2005 study based on the first two years' experience of immigrants⁷ will provide much-needed longitudinal information. Such data need to be meshed with research on and analysis of interventions that improve the chances of immigrant integration into the workplace.

The new economy

What do we understand about the dynamics and role of human capital in individual and organizational productivity and success at a sector level within the labour market? How is that understanding transmitted to the PSE sector and incorporated into changes in the curriculum and learning experiences?

International competitiveness of the workplace

Is Canada internationally competitive in its ability to attract and retain highly qualified personnel to the workplace (e.g., PSE faculty, senior managers in business)? What do we know about the brain gain and brain drain?

DATA STRATEGY ISSUES

- Without a unique personal identifier that stays with an individual throughout his/her learning and work career, there are significant problems in tracking formal linkages among various initial and continuing training, learning and career choices.
- There are remarkably few data on individual or employer satisfaction with education and training experiences as those experiences relate to work effectiveness, productivity, adaptability and career options. This gap should be addressed.
- There are no meaningful data on private providers and the return on investment that learners obtain from their studies at these institutions.
- Even where there is an existing knowledge base that is effective in finding educational interventions to integrate immigrants into the workplace (e.g., some of the work emanating from the Metropolis project), the outcomes of that work are neither broadly understood nor used by practitioners or policy-makers.

FUTURE DATA EXPECTATIONS

Labour-market supply/demand match/mismatch

- Labour-market demand and supply
 - By sector—forecasts of demand and supply, and reports on employment as compared with prior forecasts of demand, at the local, regional and pan-Canadian levels.
 - By sector—forecasts of education requirements for entry to the labour market

(Note: There is a need to refine methodologies to improve future labour-market information, while recognizing that sector-level labour-market forecasting is rarely accurate (Canadian Occupational Projection System COPS).

- Labour-market skill and competency needs—sector specific surveys (WES refined)
 - Employer expectations of skills and competencies required
 - Assessment of the effectiveness of the PSE sector in providing graduates with such skills (match/mismatch) by PSE provider
 - Literacy levels in Canada and in international comparisons, including measures of adult literacy and the retention of literacy skills in the workplace
- Labour-force dynamics
 - By sector, data on employment and unemployment dynamics—duration and transitions by educational attainment—Labour Force Survey (LFS)
- Under-represented groups
 - Labour-market uptake of under-represented groups with PSE credentials, e.g., immigrants, Aboriginal people, persons with disabilities
 - Labour-market retention of under-represented groups
- Data on impact of labour-market oriented interventions
 - Employment placement of trainees from training and education options that connect learners to the workforce (co-op, internships, service learning)
 - Employee and employer satisfaction with programs
- Inter-provincial and regional mobility
 - Data on barriers to inter-provincial mobility

Responsiveness and quality: The functioning of education and training systems for labour-market outcomes

- Labour-market employment outcomes: all PSE by PSE-provider type
 - Labour-market information (longitudinal) on income, earnings, employment and unemployment

levels by PSE attainment level, field of study, gender, socio-economic status, region, with data that can be disaggregated for under-represented groups

- Learner satisfaction with PSE learning and training experiences and the usefulness of knowledge and skills in job performance
- Employer satisfaction with the skills and knowledge of new graduates

- Financial outcomes: income and employment earnings

- Income levels and lifetime earnings prospects by level of educational attainment
- Distribution of the income premium by gender, age, region of residence, field of training/study, country and institution of credential

(Note: need to understand changing dynamics of income premium).

- Apprenticeships and trades training (RAIS, NAS)

- Enrolments and completed credentials by trade, SES, region and gender
- Time to completion; time to drop out
- Factors for success and non-completion

- Job-related learning⁸

- Employer investments in job-related training and learning
- Individual participation in job-related training during employment
- Individual investment in job-related training

- Combined credentials

- Data on articulation, ease of movement and credit recognition between and among colleges and universities.

(Note: There is a need for standardized definitions of certificates and diplomas).

Contextual: Human capital in the new economy

- Understanding the role of human capital—both static and dynamic for economic (e.g., productivity) and social outcomes (e.g., health status)
- Employment growth and PSE attainment over time
- Data on the dynamics of brain gain and brain drain for the PSE sector and for managers and highly qualified personnel (HQP) by sector of the labour market
- New tools to assess the direct impacts of PSE and human capital on productivity

PART II MEASURING WHAT CANADIANS VALUE: A PAN-CANADIAN DATA STRATEGY FOR POST-SECONDARY EDUCATION

KEY DATA PRIORITIES

Table 2.1.1 **First wave—priority indicators for pan-Canadian implementation**

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
Labour-market outcomes	Income status Earnings (cumulative) Employment/ unemployment (or further learning)	By sector and PSE attainment level, field of study, gender, socioeconomic status, age cohort, region, sub-population International comparisons	SLID PCEIP, EAG
Employer satisfaction	Technical skills and competencies Quality and relevance of soft skills	By employment sector and workplace classification, credential, PSE attainment level, region	WES
Private training schools and apprenticeship training	Completed credentials Time to completion Time to drop out Time to employment Ratio—apprentices in labour force	By trade, socioeconomic status, age cohort, region and gender	RAIS, LFS, NAS

Table 2.1.2 **Priority management and context data**

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
Numbers of qualified people in labour-market	PSE attainment—by year and cumulative	By credential, field of study, type of PSE provider International benchmark	LFS, SLID EAG
Employment	Numbers employed and dynamics of labour market	By sector and educational credentials in workforce; data over time	LFS, SLID
Unemployment	Numbers unemployed and dynamics	By level of educational attainment	LFS, SLID
Income distribution	Proportion of population earning 50% median earnings	International benchmark	EAG

Table 2.1.3 **Second wave—priority indicators for implementation**

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
Private providers	Number of institutions Number of programs Number of students Number of students with government assistance	All private PSE providers	Inadequate instruments
Brain drain/gain	Inflows and outflows of HQP by sector		NGS/FOG, SED

Table 2.1.4 **Critical framework issues and data gaps to be addressed**

ISSUE	ACTION
New and refined methodologies for labour-market information	Improvements in the forecasting of labour-market demand and supply needs. Use of back-casting to identify methodological issues (COPS)
Lack of information on private providers of training	Expansion of PSIS to cover private institutions
Lack of information on employer's expectations and satisfaction with employee skills and competencies	Sustainable funding for WES and modified content to include more questions directed to employers on their satisfaction with skills and competencies
Lack of information on labour market dynamics	Sustainable funding for WES, SLID (new education/training module), LSIC Modified LFS to update the education questions to current reality
Lack of information on integration of immigrants into the workforce	Further analysis of LSIC and SLID Initiate a new LSIC cohort representative Randomized demonstration projects to evaluate the effectiveness of intervention programs

ACRONYMS FOR INSTRUMENTS

LFS	Labour Force Survey
COPS	Canadian Occupational Projection System
PCEIP	Pan-Canadian Education Indicators Program (CESC)
LSIC	Longitudinal Survey of Immigrants to Canada (STC)
ALL	Adult literacy and life skills survey (STC and OECD)
IALS	International Adult Literacy Survey
SLID	Survey of Labour and Income Dynamics
RAIS	Registered Apprenticeship Information System
NAS	National Apprenticeship Survey
WES	Workplace Employee Survey
NGS	National Graduate Survey
NGS/FOG	National Graduate Survey Follow-up of Graduates
SED	Survey of Earned Doctorates

OTHER ACRONYMS

EAG	Education at a Glance
HQP	Highly qualified personnel

2. Innovation, knowledge creation and knowledge transfer

WHAT WE ARE TRYING TO ACHIEVE

- An effective and high-quality capacity for knowledge generation, dissemination and research training within the PSE sector—and integration of this capacity and the outputs of PSE research and training into the pan-Canadian system of innovation and society at large
- An active engagement by the PSE sector in creating conditions for effective mobilization and uptake of the knowledge outputs (research and highly qualified personnel HQP) by the private, public and not-for-profit sectors

POLICY ISSUES

- Role of PSE research in a pan-Canadian innovation system and social and economic impacts
- Quality of research and scholarship in Canada
- Quality of HQP, quality and currency of research-related skills and competencies acquired, and influence of research training on career trajectories
- Impacts of PSE research on PSE sector
- Impacts of and returns on targeted investments e.g., provincial investments and federal investments in the Canada Foundation for Innovation (CFI), Canada Research Chairs (CRC), Canada Graduate Scholarships (CGS)
- Integration of knowledge outputs into the growth of an innovation system and Canadian productivity
- Contributions of knowledge and innovation to identity, culture and social cohesion

RESEARCH QUESTIONS

In comparison with other countries, Canada has an unusually heavy reliance on PSE research

In comparison with other countries, Canada has an unusually heavy *reliance on PSE research* (Higher Education Research and Development—HERD estimates) relative to business and government R&D in comparison with other nations. In this situation, effective mechanisms for interaction, exchange and knowledge transfer (both codified and tacit) among sectors are exceptionally important. There is also need for more understanding of these interfaces and how increased PSE activity could spur business investment in R&D and/or increase business competitiveness, and promote social innovation. What are the appropriate measures of economic impacts? Is there a limit to what should be expected of universities and if so what does this mean for S&T policy with respect to the private sector?

Economic benefits

What are the economic benefits from commercialization of PSE research activities? What are the most effective modes of achieving Canadian benefit? To what extent do collective agreements support or inhibit commercialization activities?

Areas of impact and pathways of influence

There is increasing recognition of the complexity of the ways in which PSE research and training contribute to the innovation system and to society at large. This includes, but goes well beyond, the production and commercialization of technology. There is recognition of the importance of active interactive networks, the creation of new instruments and methodologies (including social instruments and methodologies), capacity for problem solving, social knowledge (in addition to technology transfer and spin-off creation). However, there is not, as yet, agreement about what constitutes an appropriate framework or a balanced set of indicators to monitor the diverse pathways of influence and to create reliable measures of outcomes (despite Statistics Canada's international discussions on science & technology and innovation indicator frameworks).

Measurements of public and private good: From public investments in research and research training

There are uneven and inadequate measures of the quality and efficiency of public-good outcomes—advancement of knowledge, formation of talent through research, and improvements in the quality

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of post-secondary education. A key research question concerns the balance of public and private good from doctoral studies in various fields (as indicated by employability and time to employment; see Survey of Earned Doctorates (SED) outcomes). For certain regions of Canada the out-migration of a high percentage of doctoral graduates raises questions of return on investment (ROI) from expensive programs.

Productivity and quality by field

There is a need for better understanding of what this means and how to measure across different fields. The 2006 CCA report revealed a large gap in measurement tools available for the social sciences and humanities versus the natural sciences and engineering (NSE).

Policy interventions

There is a need for better means to evaluate the relative effectiveness and efficiency of the various instruments that support PSE research, both federal and provincial.

Local appropriation

Considerable importance is being given to ensuring communities and regions realize benefits and returns from PSE research investments. What do we know about local and regional appropriation of benefits from research and research training and the factors for optimizing local returns?

International competitiveness

To what extent do we understand the quality and sustainability of the PSE research environment in the context of increasing investments by other nations? Can Canada continue to attract and retain the best researchers? Is Canada producing an adequate and balanced supply of master's and doctoral graduates for labour-market needs?

Retention of research talent

What is the international mobility of doctoral students and graduates and what are the returns to Canada on the inflows and outflows? To what extent do Canadians studying abroad return to Canada? To what extent do international students stay in Canada in employment linked to their research experience? Longitudinal data spanning at least 10 years are required for policy-relevant analyses.

Competencies developed through research training

Understanding the relationships between research experience and labour-market outcomes. Are we preparing the right types of people and skills for the changing HQP workforce? There is a need for better longitudinal data on career trajectories following post-graduate training (e.g., National Graduate Survey NGS and occasional repeats of the Survey of Earned Doctorates SED). Is the production of doctoral graduates in math, physical sciences, engineering and computer science adequate for Canada's needs? A reverse study of the educational factors for success in the private and public sectors could also reveal significant gaps.

DATA STRATEGY ISSUES

- Gaps do not simply exist at the data level, but also exist when outcomes and impacts frameworks are conceptualized, when indicators are developed and when information is analyzed and synthesized.
- Measures of socio-economic impacts—There is a need for an improved conceptual framework for measuring and assessing the quality and contributions to prosperity and quality of life of PSE research, research training and knowledge transfer.
- Need for better means to measure the impact of research training on career choices and success in the labour market recognizing the fact that an increasing number of private-sector leaders believe that the training of highly skilled personnel through research and the provision of research and advisory services by academic faculty are of greatest economic value (albeit, this is difficult to measure).
- Need for more academically based research capacity in PSE policy who will ensure more effective analysis and refinement of survey instruments as an ongoing responsibility.

FUTURE DATA EXPECTATIONS

Highly qualified personnel (Post-secondary Student Information System, National Graduate Survey, Survey of Earned Doctorates)–assessment of stocks and flows

- Graduate program population dynamics–by program, level of study, gender, institution, Canadian and international students
 - Enrolment
 - Completions
 - Graduation rate
 - Time to graduation
 - Time to drop out
 - Graduates per 1000 population
- Employment and mobility
 - Labour-market outcomes–by field of occupation, sector of labour market and time to employment
 - Relationship of graduate studies to employment
 - Extent of mobility of graduates
- Labour market
 - Number of doctorate holders per thousand population
 - Age structure of doctorate population
 - International flows (into and out of Canada) of doctorate holders
 - Labour-market integration of immigrant doctoral holders
- Institutional actions
 - Number (and percentage) of senior undergraduate and graduate students engaged in co-op placements and internships
 - Impact of external placements on receptor organization and individual
- International comparisons of levels of production–by program, at master's and doctorate levels
- National Graduate Survey (for the master and doctoral component) –extend longitudinal baseline to 10 years and ensure improved timeliness of data release and analysis of findings; also need to link approach with international indicators on the stocks and flows of HQP, ensure international students are tracked
- Survey of Earned Doctorates–ensure annual data collection and timely analysis

R&D system metrics

- Activities (annual data collection)
 - Performers–Number of researchers by field and institution and time committed to research (methodology for treating research at different-sized institutions and among different fields

embedded in Higher Education Research and Development–HERD estimates)

- Funding–R&D funding by field, institution and source of funding
- Knowledge transfer activities–measures of activities involving diffusion of knowledge, technology and practices, including contributions to public discourse
- Extent of internationalization/globalization
- Linkages
 - Measures of connections among institutions, (e.g., PSE institutions and governments; PSE institutions and firms; PSE institutions and private not-for-profit entities).
 - Measures of connections among individuals (e.g., social networks; problem solving and advice from PSE researchers)
- Outcomes–Improved measures of outcomes, including
 - Level (intensity) of R&D by field and institution
 - Extent of “diffused knowledge” from R&D–through publications, patents, copyrights
 - Areas in which Canada excels in a global context
 - R&D infrastructure that provides Canada with unique advantages
 - Technologies and innovations (licensed patents, other innovations and practices implemented, new methodologies, etc.)
 - Spin-off companies
- Impacts–need for new conceptual frameworks and likely case studies that link R&D activity with larger societal impacts (multiple influences make direct causality measures almost impossible)
 - Well-being–quality of life, quality of citizenship and public discourse, Canada as a successful society
 - Wealth–economic productivity and firm-level competitiveness,
 - Wellness–health outcomes

Priority policy issues

- Data to illuminate the long-term supply/demand functions for doctoral graduates in math, physical sciences, engineering and computer science

Program-specific issues

- Metrics on value-added that relate to specific program initiatives, e.g., Canada Research Chairs (CRC)

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KEY DATA PRIORITIES

Table 2.2.1 **First wave—priority indicators for pan-Canadian implementation**

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
Financing	Financing of PSE R&D	By source of funds and major areas of research, by type of PSE provider and by region	Statistics Canada
Performance	Percentage of GERD performed by HE/PSE sector		GERD HERD
HQP—stock	Number of doctoral holders (cumulative) per thousand population	By major areas of study—health, NSE, SSH	Statistics Canada
HQP—flows	Enrolments and completions by year	By institution, type of institution, level of study, field of credential (Health, NSE, SSH; split out MPT from NSE), region, gender	PSIS
Efficiency—HQP	Program graduation rate Time to completion	By institution, level and field of study	MCTU G-13
Commercial research outputs and outcomes	Licensed patents Spin-off companies Revenues	Research intensive institutions	AUCC AUTM Commercialization surveys (Statistics Canada)

Table 2.2.2 **Priority management and context data**

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
GERD	R&D as share of GDP	For Canada, by province and by industrial sector	GERD
Personnel	R&D personnel	By sector, field of activity, gender and age cohort	Statistics Canada

Table 2.2.3 **Second wave—priority indicators for implementation**

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
Labour-market outcomes (masters and doctoral)	Time to employment Employment rate—on graduation and after 2, 5 and 10 years Income—on graduation and after 2, 5 and 10 years	By credential, field of study, field of occupation, sector of labour market	NGS SED
Outputs from university research	Impacts Linkages	For NSE and health—Bibliometric indicators—citation data For all fields—bibliometric data on international linkages	Special studies
Brain drain and gain	Flows of doctoral holders into and out of Canada	By field of specialization, country of origin/destination, gender, age cohort	Special studies NGS-FOG, SED
The math, physics and technology challenge	Supply and demand for mathematics, physics and technology doctoral holders		NGS SED

Table 2.2.4 **Critical framework issues and data gaps to be addressed**

ISSUE	ACTION
Social outcomes and impacts of research	Need for an improved conceptual framework for measuring, and assessing the quality and contributions of PSE research, research training and knowledge transfer to prosperity wellness and quality of life
Reliable, timely and regular information on HQP	Sustainable funding to continue NGS-FOG and SED Support full implementation of PSIS Assess the feasibility to implement GPSS across all institutions with graduate studies
Reliable and disaggregated information on PSE R&D	Sustainable funding of PSE S&T surveys

ACRONYMS FOR INSTRUMENTS

PSIS	Post-secondary Student Information System
NGS	National Graduate Survey
NGS/FOG	National Graduate Survey Follow-up of Graduates
SED	Survey of Earned Doctorates
GPSS	Canadian Graduate and Professional Student Survey (Seven Canadian institutions participated in the survey with a number of U.S. institutions; survey instrument developed by the Massachusetts Institute of Technology and Duke Universities)
IP in HE	Survey of Intellectual Property Commercialization in the Higher Education Sector (Statistics Canada and Industry Canada)
AUCC data	Association of Universities and Colleges of Canada
U.S. survey of commercialization	
NSSE	National Survey of Student Engagement

OTHER ACRONYMS

R&D	Research and development
CCA	Council of Canadian Academies: the 2006 Report "The State of Science and Technology in Canada"
HERD	Higher Education Expenditures on R&D
GERD	Gross Expenditures on R&D
OECD	Organisation for Economic Co-operation and Development: International comparison data
MPT	Math, physics and technology
AUTM	Association of university technology managers (U.S.)
MCTU	Ministry of Training, Colleges and Universities
HE	Higher education
CFI	Canada Foundation for Innovation
CRC	Canada Research Chairs
CGS	Canada Graduate Scholarships
NSE	Natural sciences and engineering
SSH	Social sciences and humanities

3. Active, healthy citizenry

WHAT WE ARE TRYING TO ACHIEVE

- Optimize the benefits of post-secondary education for the health and well-being of Canadians and Canada—the larger social benefits
- Empower and enable individuals for well being in a changing world

POLICY ISSUES

- Linkage of PSE attainment and PSE R&D investments with increased social capital—especially as captured through health and well-being for individuals and society at large
- Linkages of expenditures on and increased participation in PSE and social cohesion and active citizenry
- Linkages of expenditures on PSE and improved individual health status and reduced societal health-care burdens
- Public opinion regarding the value and relative importance of different outcomes of PSE

RESEARCH QUESTIONS

Understanding the linkages with PSE

There is increasing evidence that education, including PSE, has wide-ranging effects on various social outcomes, e.g., civic participation, health status and longevity and reduced criminal activity. What are the pathways by which this occurs and the specific effects of PSE? Does PSE enable people to be more adaptable to changing circumstances?⁹

Citizenship

What is the relationship between the level of educational attainment and individual and collective well-being, e.g., the discussion around successful societies? How is this manifest in society, e.g., in voting behaviour, volunteering and giving, stronger social cohesion and tolerance? Are more educated individuals more or less trusting of institutions and the professions attached to these, such as the political system, the judicial system and the medical system?

Health

What is the relationship between level of educational attainment, reduced disparities in individual health status and reduced costs of social and health-care services?

Effective practices

What practices and innovations within the PSE sector contribute to enhanced social outcomes and how could these experiences be enhanced? Consider for example:

- The introduction of learning communities within PSE (learning environments outside the classroom, such as in residences). The National Survey of Student

Engagement has connected these environments to the quality of education received, and the persistence and retention of PSE students. How can best practices in communities of learning be measured?

- Service Learning is a growing aspect of many universities. Student participation in service learning is one of the few formal ways that students gain experience in volunteerism. The number of students who participate in service learning could become a key benchmark of institutional commitment to communities and to students' roles as engaged individuals.

Pathways of influence; measurement issues

How does one define civic and social engagement, what are the pathways through which it is learned and exercised? And how should it be measured, especially as the historical, cultural and economic context may preclude simple regional and international comparisons? Examples of valuable lines of research that could be pursued with appropriate access to data are:

- The question of the correlation of voting patterns with PSE attainment—Is this a financial status issue or another factor introduced by PSE?
- Community involvement as measured by participation in not-for-profit voluntary organizations and activities, which may vary enormously by age.

Participating in the international discussion

The second phase of the OECD Centre for Educational Research and Innovation (CERI)-Network B project on social outcomes of learning can be expected to provide suggestions for indicators from existing sources.

DATA STRATEGY ISSUES

- There is a need for a new conceptual framework and set of indicators that addresses the social dimensions of the outcomes and impacts of PSE.¹⁰
- Existing data sets, e.g., the World Values Survey could be exploited more effectively.
- There are significant opportunities for partnerships with various federal agencies to develop further the notion of social benefits from PSE participation. Among potential partners are Health Canada, Elections Canada, Citizenship and Immigration Canada and the Social Sciences and Humanities Research Council.

FUTURE DATA EXPECTATIONS

Social outcomes

- Behavioural outcomes disaggregated by level of qualification received (e.g., certificate, diploma, degree) by type of institution (e.g., University, Community College, Private Trade School) and by province
 - Voting patterns
 - Percentage of population donating to charities, average amount donated
 - Percentage of population volunteering for community activities
 - Criminal activity
- Knowledge and trust outcomes disaggregated by level of qualification received (e.g. certificate, diploma, degree) by type of institution (e.g, University, Community College, Private Trade School) and by province (General Social Survey, GSS)
 - Social capital
 - Trust placed in neighbours and the police

Health outcomes

- Health outcomes disaggregated by level of qualification received (e.g., certificate, diploma, degree) by type of institution (e.g., University, Community College, Private Trade School) and by province
 - Real and perceived health status
 - Average age of mortality
- Health system impacts disaggregated by level of qualification received (e.g., certificate, diploma, degree) by type of institution (e.g., University, Community College, Private Trade School) and by province
 - usage and intensity of health services
 - average cost of health expenditure

Innovative practices

- Service learning and community engagement
 - Number and percentage of students participating
 - Recognition of learning experience through course credit (percentage)
 - Influence of that experience on employment choices

KEY DATA PRIORITIES

Table 2.3.1 **First wave—priority indicators for pan-Canadian implementation**

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
Health status	Real and perceived health status Life expectancy	By educational attainment level, age cohort, region	CCHS, NPHS
Health system burden	Use of health care system	By educational attainment level, age cohort, region	CCHS
Charitable giving	Percentage donating Average donation	By educational attainment level, age cohort, region	LAD SHS
Voting behaviours	Likelihood of voting		CSGVP, SCAL

Table 2.3.2 **Priority management and context data**

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
Public opinion	Attitudes toward the impact of PSE	Population samples	Opinion surveys (various)
	Importance of PSE for social capital		

Table 2.3.3 **Second wave—priority indicators for implementation**

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
Tolerance	Acceptance of diversity	By education attainment level, age cohort and region	Various surveys WVS
Trust	Trust in police Trust in neighbours and community	By education attainment level, age cohort and region	WVS
Student exposure	Percentage of student population engaged in community learning activities. Percentage of credentials awarded for community learning	By program, field of study, credential level, type of PSE provider	Not collected

Table 2.3.4 **Critical framework issues and data gaps to be addressed**

ISSUE	ACTION
New social framework and indicator sets over time	Integrate outcomes of work of OECD CERi-Network B project on social outcomes of learning Revised content of next GSS cycle on social capital to integrate outcomes of the OECD work with an over-sample of immigrants Assess the feasibility to implement NSSE in all PSE institutions
Exploit existing sources	Commission work on outcomes of World Values Survey, including the issue of indicators of “happiness”
Lack of information on linking health and learning	Further analysis of the new health literacy data from ALLS Linking health-related databases (CIHI) with learning/education information at small area levels (Statistics Canada, small area estimates of literacy)

ACRONYMS
FOR INSTRUMENTS

NGS	National Graduate Survey
NSSE	National Survey of Student Engagement
PCSCS	The Pan-Canadian Study of College Students modelled on the U.S. CCSSE
WVS/ESS	World Values Survey/ European Social Survey
GSS	General Social Survey (for measures of social capital and other related topics)
CCHS	Canadian Community Health Survey
NPHS	National Population Health Survey
LAD	Longitudinal Administrative Data
SHS	Survey of Household Spending
CSGVP	Canada Survey of Giving, Volunteering and Participating
SCAL	Survey of Canadian Attitudes toward Learning
ASETS	Access and Support to Education and Training Survey
ALLS	Adult learning and lifeskills survey

4. Quality PSE

WHAT WE ARE TRYING TO ACHIEVE

- Delivery of uniformly high-quality post-secondary education with the result that Canadian PSE institutions, learners, programs, learning environments, learning outcomes and credentials compete with the best in the world.
- Commitment to continued improvement¹¹

POLICY ISSUES

- Understanding the nature of quality in PSE
- Accreditation and assessment of quality in PSE
- Linkages of quality of learning opportunities, individual PSE attainment and outcomes
- Overall system functioning, including human-resource issues, quality and efficiency of provision and the attainment of credentials
- Mobility of credentials between levels of PSE
- Understanding the link between teaching excellence and innovation and learning outcomes (the scholarship of teaching and learning)

RESEARCH QUESTIONS

Human resource issues

Quality of PSE faculty, sufficiency (e.g., in relation to student numbers) and sustainability (e.g., in relation to institutional capacity to attract and retain students) are key issues for which there is a paucity of data and relatively little analysis of critical issues that could inform policy and investment decisions. At the moment, data on full-time university faculty levels are not current, there are no recent data on sessional/part-time university faculty, and there are no recent data on full-time or sessional/part-time community-college faculty. The data gaps are even more pronounced for private providers. To what extent are current faculty demographics and hiring patterns providing for system quality and sustainability? Anecdotally, there are reports of field-specific issues with respect to attracting quality faculty (e.g., business schools) deriving from the forecast competition from the U.S. over the next five to 10 years. But without a robust pan-Canadian data source, conducting policy analysis and exploring policy impacts is compromised.

Quality as efficiency of the system

There is a need to understand better the dynamics of attrition and completion (e.g., the time to completion and graduation rates) as they relate to the program of study, and socio-economic status of learner. Of equal interest is who drops out, why, where they go and whether they return and complete their credential later or elsewhere? Why are there gaps in male and female participation and completion?

Quality through innovation and quality teaching

What are the key factors affecting quality of student learning and learning outcomes? Most importantly, there is a need for a major investment in the scholarship of teaching and learning that will create better measures of learning outcomes.

Quality as student engagement

Moves to implement measures of student engagement and attainment (e.g., as assessed by the National Survey of Student Engagement), and increased investment in the assessment of the data and the factors for success (e.g., Community College Survey of Student Engagement) are very encouraging. But a lack of broad implementation and a lack of common formats for public reporting of the data diminish the potential benefits for learners, institutional management and policy-makers. We should also consider quality as the application of student learning to social issues. For graduate and professional programs, the Graduate and Professional Student Survey (GPSS) is increasingly being used by institutions, but faces the same issues of a lack of standardized modes of reporting. How many students are participating in international exchanges or international language programs to enhance their exposure to global issues?

Quality as external recognition of the quality of programs and credentials

Does the lack of pan-Canadian accreditation make a difference in quality? Canada is unique in the top 30 OECD countries in not having a formal PSE accreditation system of programs and post-secondary institutions. While the nature and quality of degrees from Canadian institutions are widely accepted, diplomas and certificates do not enjoy the same uniformity of interpretation. One exception is the Red Seal trades accreditation pan-Canadian standards. How is this manifest in mobility of credentials among institutions and regions, including international recognition?

Private providers

What quality assurances should the state provide and how are these to be monitored effectively? Without quality assurances, is buyer beware a sufficient policy when the state provides financial assistance to learners?

DATA STRATEGY ISSUES

- Promote common data standards and standardized comparable modes of reporting of performance data that are collected at institutional levels. While the level of performance and accountability reporting has increased dramatically over the last decade, the lack of consistency in definitions and reporting standards is problematic.
- There is a lack of timely nationally comparable data on faculty and student numbers across all components of the PSE sector.
- There is a need for a unique identifier number assigned to students that will allow tracking of learners through different institution and regions.

FUTURE DATA EXPECTATIONS

Institutional and program recognition by PSE providers (including private providers)

- Number of accredited institutions
- Number of accredited programs
- National/international recognition of credentials

Faculty–quality, sufficiency and sustainability

- Current and timely data on faculty numbers, field, gender, qualifications and age cohort (FT and sessional/PT instructors) across all PSE providers (university, college and private providers)
- Age of faculty in relation to the labour force (time series)
- Student to faculty ratios, by institution, PSE sector, field of study, time series and trends are important
- Data on use of sessional/part-time faculty instructors in PSE sector
- Annual rates of new faculty and instructor hires by institution type, credential levels and program of study current and projected
- Forecast shortfalls of doctoral degree recipients by field of study

Learner persistence and achievement/outcomes

- Credentials attained: by level and type of PSE provider; as percentage of the population annual and accumulated

(Note: definitional challenge)

- Employment rates six months and 12 months after graduation by institution, program and gender
- Program graduation rates: by institution, gender, socio-economic background and program of study, including direct-entry and second-entry programs

(Note: definitional issues; considerable experience among G-13 and in certain provinces with measurement issues)

- National graduation rates: total number of graduates per population at typical age of graduation
- Attrition and transfer rates: By institution, gender and program of study. Ideally with a unique student identifier one could look at the system dynamics—what percentage of students who start in any given year continue PSE at a different institution or left PSE completely within a given time frame.
- Non-completers: average time to drop out by institution, program of study and gender

Quality of student engagement and satisfaction—Canadian refinement and application of existing tools like National Survey of Student Engagement (NSSE) and the Collegiate Learning Assessment (CLA)

- Student satisfaction with learning experiences (National Graduate Survey, NGS).
- Measures of the quality and effectiveness of post-secondary education (e.g., level of academic challenge, active and collaborative learning, student-faculty interaction, enriching educational experiences, supportive campus environment). This could be done through pan-Canadian implementation of Canadian-adapted versions of the National Survey of Student Engagement and the Collegiate Learning Assessment (Note: many institutions are now using these tools.)

Learning outcomes—New tools required

- Using the institution or program as the primary unit of analysis, direct measures of the value added of the learning experiences as they pertain to key factors central to college and university-level education (e.g., critical thinking, analytic reasoning and written communication modelled on the U.S. Collegiate Learning Assessment tool)
- Indicators that link the institutional learning provision to the incremental or value-added learning and employment outcomes for learners (to avoid simply measuring the quality of student entries to PSE).

PART II MEASURING WHAT CANADIANS VALUE: A PAN-CANADIAN DATA STRATEGY FOR POST-SECONDARY EDUCATION

KEY DATA PRIORITIES

Table 2.4.1 **First wave—priority indicators for pan-Canadian implementation**

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
Attainment	Number and type of credentials per year National graduation rates (degrees)	Numbers by type of credential, type of PSE provider, field of study, gender, age cohort, SES status and sub-population. By degree level and year	Data reported to Statistics Canada by institutions PCEIP
Efficiency	Program graduation rates—percentage within scheduled time to completion Median and longest time to completion—years (or months) Drop out and transfer rates—percentage of starting cohort Each by year	By PSE institution, type of PSE provider, field of study, gender, age cohort, socio-economic status and sub-population <i>Note— Ministry of Training, Colleges and Universities uses graduation within seven years of an entering cohort of students for graduation rate data</i>	In Ontario, graduation rates are reported by all universities (required by Ministry of Training, Colleges and Universities)

Table 2.4.2 **Priority management and context data**

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
Faculty resources	Faculty numbers—full-time and part-time and/or sessional Age of faculty relative to labour force	By institution, field, type of PSE provider, gender, qualifications and age cohort (full-time and sessional/part-time instructors) By program, type of PSE provider, region	UCASS (full-time university faculty only)
Student population	Student numbers—full-time and part-time Average entering grades of first year students	By institution and type of PSE provider By institution and type of PSE provider. Contextual data for use in assessing institutional value added	PSIS (in part) G-13 collect such data

Table 2.4.3 **Second wave—priority indicators for implementation**

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
Sufficiency of faculty	Full-time student: full-time faculty ratios Shortfalls in doctoral production	By faculty, institution, type of PSE provider By field of study	Data not available for institutions other than universities
Student satisfaction	Measure of student satisfaction with learning experience Need to evaluate the promising use of NSSE, CCSSE and CLA as they move to assess value-added of PSE experience	By level of credential, institution, type of PSE provider	NGS (every 5 years) GPSS
Quality of learner engagement	Level of academic challenge Active and collaborative learning Student-faculty interaction Enriching educational experiences Supportive campus environment	By institution, benchmark families of like institutions, and type of PSE provider	NSSE and U.S. CCSSE used fairly widely MTCU requires Ontario universities to publish
Formal recognition	Number of accredited institutions Number of accredited programs	By type of PSE provider By type of PSE provider	

Table 2.4.4 **Critical framework issues and data gaps to be addressed**

ISSUE	ACTION
Unique learner identifier	Support implementation of a unique student identifier to be used across Canada—will allow lifelong tracking of learners among PSE providers and among students who move among programs, institutions and regions of Canada
Standardized terminology	Clear data definitions and standards for degree, diploma and certificate Also definitions needed for full-time and part-time students and faculty
Lack of timely and regular data on faculty and student numbers	Support full implementation of PSIS Expansion of PSIS for private providers
Improve tracking of graduates	Refine NGS a) extend longitudinal coverage to 10 years, e.g., samples 2, 5 and 10 years; b) increase frequency—move to every 3 years

ACRONYMS FOR INSTRUMENTS

NSSE	National Survey of Student Engagement
PCSCS	The pan-Canadian Study of College Students modelled on the U.S. CCSSE
CCSSE	Community College Survey on Student Engagement (U.S.)
NGS	National Graduate Survey
GPSS	Canadian Graduate and Professional Student Survey (Seven Canadian institutions participated in the 2005 survey with a number of U.S. institutions; survey instrument developed by the Massachusetts Institute of Technology and Duke University)
UCASS	University and College Academic Staff Survey
CLA	Collegiate Learning Assessment (U.S.)
PSIS	Post-secondary Student Information System
CUSC	Canadian Undergraduate Survey Consortium
PCEIP	Pan-Canadian Education Indicators Program

OTHER ACRONYMS

MTCU	Ministry of Training, Colleges and Universities (Ontario)
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5. Access; and

6. Participation by under-represented groups

WHAT WE ARE TRYING TO ACHIEVE

- That Canadians have equitable opportunities to access and benefit from post-secondary education, whatever their economic and social background. The ultimate goal is to ensure that Canadians have an opportunity to fulfil themselves through learning and that Canada has the skilled labour supply and educated citizenry necessary to prosper in a changing world.
- Understanding and improving the participation and persistence of groups under-represented in PSE is a priority as this will lead to greater social cohesion. Key target groups are Aboriginal youth, youth from lower income families, first-generation PSE learners and learners with disabilities

POLICY ISSUES

- Dynamics and trends in PSE participation and persistence
- Understanding why some groups are under-represented in PSE, including barriers to PSE access and persistence
- Effectiveness and efficiency of policy and program interventions
- Capacity of PSE institutions to deliver on expectations
- Importance of PSE education and training for the new economy; impact of disparities in educational attainment on Canada's social and economic prospects
- Suitability of information and feedback for an effective matching of students with programs and institutions
- The linkage between education and the preservation and enhancement of various cultural values and groups, and the extent to which the faculty and staff at PSE institutions are broadly representative of the diversity of Canadian society.

RESEARCH QUESTIONS¹²

Trends

What are the most recent trends in Canadian and regional PSE participation, persistence and attainment in comparison with other nations and in the context of Canadian population demographics. Do the international differences matter and why?

Under-represented groups

What do we know about which groups are under-represented in PSE and/or at risk in PSE attainment. How do we obtain insights on who does not attend PSE and why? Key target groups that are known to be under-represented and need to be tracked (time series and regional distribution) in the context of a pan-Canadian data base on access and attainment:

- Aboriginal learners
- Learners from low-income families
- First-generation PSE students
- Males (and females in a limited number of program areas)
- Learners with disabilities, physical and learning
- Certain immigrant ethnic groups

Factors/determinants

What evidence do we have concerning the determinants of PSE participation and attainment by the learner population in general, and these under-represented groups in particular—and what does this mean for interventions that could make a difference? Recent work by Statistics Canada¹³ has revealed that the large gap in university attendance by family income can be accounted for by differences in a limited number of observable characteristics. These would benefit from further research to identify effective modes of intervention: cognitive achievement at age 15 (e.g., as shown by standardized test scores in reading), parental influences, and high-school quality. In contrast, financial constraints are a relatively minor factor, but may be significant in certain circumstances for some segments of the learner population (e.g., rapid deregulation of fees for professional programs). Some specific issues to consider:

- **Academic preparation and transition** Given the link between academic performance in high school and later participation in post-secondary education, what are the factors for success in K-12 education and for

effective transitions to PSE? Why do students from lower-income families tend to perform more poorly on standardized and scholastic tests than students from higher-income families? Are standardized tests culturally biased? The pre-PSE pipeline is of particular importance for addressing the under-representation of aboriginal youth in PSE¹⁴. Are there undue barriers (academic, financial, attitudinal) in transitions among PSE providers?

- **Gender gap** What are the factors underlying the gender gap in PSE, what are the opportunities for efficient and effective intervention and what are the sociological effects of current trends?
- **Interest and motivation** What do we know about the impact on participation and persistence of such factors as information on PSE, perceived personal benefit, supportive networks, educational attainment of the learner's parents, the learner's career objectives, and the counter-pull of the labour market. What does this reveal in terms of opportunities for cost-effective interventions?

Apprenticeships and trade programs

What do we know about student choice to access such programs and the reasons for early dropout?

Higher-level PSE participation

What are the trends in participation and attainment levels, both for the population at large and for under-represented groups, in higher-level and second-entry programs (e.g., some professional and graduate programs). A recent OECD study revealed that the share of doctorate holders in the population or labour force is two or three times larger in Germany and Switzerland than in Australia, Canada and the United States. Canada also has an older population of doctorate holders than Europe and this population is still aging. Is this a policy issue?¹⁵

Modes of facilitating access

- **Among PSE institutions** What is the extent and efficiency of credit transfer and recognition, including among different PSE providers and different jurisdictions? This includes the provision of innovative joint programs.
- **Prior Learning Assessment and Recognition (PLAR)** What is the extent and efficiency of use among different PSE providers of formal systems to recognize prior and experiential learning (PLAR)? Should there be a pan-Canadian PLAR system?
- **E-learning** To what extent is e-learning being implemented and is it successful in supporting quality learning outcomes? What are the factors for success? What are the costs and benefits of e-learning?

System capacity

What is the capacity of the PSE system to deal with forecast demographic pressures, and changing learner and societal expectations:

- **Financial** What is the adequacy of funding levels and efficiency of delivery of the various sectors of the PSE system?
- **Faculty complement** Adequacy and sustainability of faculty (see section on affordability).
- **Articulation agreements among PSE providers** To what extent are there effective articulation agreements among PSE providers, in particular recognition of credentials and learning outcomes?
- **Flexibility of delivery** To what extent is the overall PSE system flexible, willing and able to adjust to changes in demand and expectations?
- **Learner support** To what extent are retention in the PSE system and learning outcomes affected by student support services and peer networks, teaching & learning services, student housing, communities of learning in residences, etc?

DATA STRATEGY ISSUES

- Among all PSE providers, there is a problem with significant data gaps and time delays in releasing data on student and faculty numbers. There is a particular problem in obtaining relevant data on Aboriginal learners to inform policy and practice. What is the best way to attain the full collaboration and engagement of aboriginal communities to obtain meaningful and comparable PSE data?
- Data consistent with international standards (e.g., OECD Education at a Glance) are not available in a timely fashion.
- Lack of a pan-Canadian student identifier impedes systematic tracking of students among components of the education system.
- More systematic longitudinal data are required to track pathways between K-12, various components of PSE, and the labour market. However, most recent Youth in Transition Survey cohorts are promising.

FUTURE DATA EXPECTATIONS

Core baseline reference data on potential stocks of PSE learners—time-series data on secondary school students, including high-school attainment levels and dropout rates of learners by (with selective surveys to allow assessment of linkages among issues):

- Socio-economic status
- Gender
- Status—Aboriginals (on reserve and urban), immigrant
- Geographical location—rural/urban
- Educational participation and attainment level of parents
- Scores on standardized tests (especially reading)
- Unique student identifier for tracking

Also, how effective are the linkages between secondary schools and the range of PSE providers in providing effective information for choice by the potential PSE students? What interventions work to facilitate transitions?

Core data on participation in PSE—Time series enrolment data by age cohort, gender, level and mode of study, program, level of study, institution and type of PSE provider.

Core data on flows—persistence and attainment in PSE—Time-series PSE data that reveal trends and that can be disaggregated by under-represented groups and various critical factors, including:

- PSE participation by program and level of PSE credential in relation to the general population and to PSE enrolments
- Graduation rates
- Attrition and transfer rates
- Non-completers—characteristics and rationale
- Part-time students
- Drop-ins and dropouts/returnees
- Apprenticeship completion rates

Selective surveys that explore key policy issues of relevance with respect to participation, persistence and attainment. Examples include:

- Gender differences in PSE participation by socio-economic status, labour-market conditions, region, program, etc.
- Data on parental influences, and other socio-economic background characteristics across the income distribution.
- Multiple influences of financial and non-financial factors.
- A meaningful set of data on aboriginal participation and attainment in K-12 and PSE education.

Data on PSE sector functions

- Selective surveys on credit transfer, PLAR and e-learning (routine data collection likely not a cost effective approach)

System capacity measures

- Time-series data on financial and human **resources invested per student** by institution and PSE provider class. This would provide the basis for opportunity-cost analysis.
- **Annual expenditures** on PSE relative to GDP by PSE provider class.
- **Faculty/student ratios** with capacity for disaggregating into full-time and part-time/sessional faculty.
- Time-series data on the **relative proportion of public and private expenditure** on PSE.

KEY DATA PRIORITIES

Table 2.5–6.1 First wave—priority indicators for pan-Canadian implementation

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
PSE enrolment	Numbers enrolled in PSE Participation rate within 20-25-year-old cohort	By institution, type of PSE provider, gender, level and mode of study (e.g., distance), program, level of study, age cohort, socio-economic status, sub-populations	PSIS (incomplete)
Under-represented groups	Comparative participation rates	Time series and regional distribution by under-represented groups <ul style="list-style-type: none"> • Males • First Nations • Disabled • Low socio-economic status • Low PSE attainment by parents 	PSIS
PSE attainment	PSE attainment level (highest)	Canadian population and working-age population by region; including sub-populations	Statistics Canada Education at a Glance (OECD)
Doctorate holders	Percentage of population holding doctorates	Percentage of population holding doctorates by field and by age cohort International benchmarks	

Table 2.5–6.2 Priority management and context data

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
Stock of direct entrants from secondary school	Number and percentage of secondary students completing Drop out rates Scores on standardized tests	By region, socio-economic status, gender, region, urban/rural, including under-represented groups	Education at a Glance (OECD)
PSE participation	PSE participation rate	By type of PSE provider Percentage of population enrolled in PSE by type of PSE provider and age cohort	PSIS
Public opinion	Perceived opportunity to attain credential Perceived adequacy of student support services	By type of PSE provider, region, sub-group	Opinion surveys
Resource base	Faculty/student ratio Operating funds per full-time equivalent student		PSIS UCASS

Table 2.5–6.3 Second wave—priority indicators for implementation

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
Technology—mediated learning	Number of courses given online Number of credentials available by distance learning	All PSE providers by type	Not collected
Student services	PSE institutional outreach to secondary schools PSE institutional investment in student services Student satisfaction with student services Institutional student aid per FTE student and as percentage of operating budget	By type of PSE provider	Not collected
PLAR	Active PLAR initiatives	By region	Inadequate instruments

Table 2.5–6.4 Critical framework issues and data gaps to be addressed

ISSUE	ACTION
Unique student identifier	Support pan-Canadian implementation
Research insights	Factors underlying the under-representation of some groups and in some areas of study
Lack of longitudinal information	Further analysis of the new education and training module of SLID Further analysis of YITS and LSIC
Lack of information on transitions, persistence and attainment in PSE, overall and by under-represented groups or regions	Sustainable funding of NGS/FOG/SED Support full implementation of PSIS Support funding for the new proposed ASETS Assess the feasibility to implement an equivalent BPS from the U.S., (i.e., follow-up institution-based survey with students at different cycles) Prepare analysis plan for the new revised education content of 2006 Census (to be released in 2008)
Lack of timely and regular information on PSE “stocks”	Support full implementation of PSIS

ACRONYMS FOR INSTRUMENTS

YITS	Youth in transition survey (Statistics Canada)
SLID	Survey of Labour and Income Dynamics
NGS FOG	National Graduate Survey Follow-up of Graduates
PISA	Program for International Student Assessment
EAG	Education at a Glance
PCEIP	Pan-Canadian Education Indicators Program
OECD	Various data sets
LFS	Labour Force Survey
PSIS	Post-secondary Student Information System
UCASS	University and College Academic Staff Survey
CAUBO	PSE Finances (Association of Canadian Community Colleges and other PSE providers)
LSIC	Longitudinal Survey of Immigrants to Canada (Statistics Canada)
ASETS	Access and Support to Education and Training Survey
BPS	Beginning Post-secondary Students
Various surveys carried out by the Millennium Scholarship Foundation	

OTHER ACRONYMS

OECD	Organisation for Economic Co-operation and Development
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7. Lifelong Learning

WHAT WE ARE TRYING TO ACHIEVE

- That Canadians, established and new, are able to fulfil their potential in a changing labour market and society. That they can access adult education and training that is relevant and responsive to their interests and needs; and that there are emergent opportunities in the labour market and available in every community (not necessarily face-to-face).
- That there is increasing engagement of all PSE providers in adult education; and increasing investment by employers in adult education.

POLICY ISSUES

- Linking adult education and training with the labour market—Informing adult education and training opportunities according to workforce needs and ensuring adult-learner access.
- Who provides? Which PSE providers are the most suitable for what needs.
- Who pays? What is the role and share of investment by learners, governments and employers?
- Who participates? What is the extent of access by adult learners; immigrants; other sub-populations?
- What are the outcomes? What are the credentials/qualifications and mobility of those credentials?
- Public policy issues: linkage of employment insurance (EI) and welfare with adult education and training.

RESEARCH QUESTIONS

Linkages with the labour market

To what extent does distance education meet the needs of adult learners and their employers? How can those linkages be strengthened to ensure timely and relevant education and training offerings?

Who provides

Who is best able to meet the adult education needs of workers in all sectors and of sub-populations (e.g., immigrants and First Nations)? How many adult learners prefer face-to-face learning and what is the cost/benefit relationship between the alternatives? Continuing education offered by universities and community colleges is ubiquitous. To what extent do these courses meet the needs of adult learners in the workplace and in citizenship?

Who pays

What are the sources of support for adult education? What is the extent and what are the trends of employer investment in adult education and training? To what extent does student assistance support adult education? What incentives are most effective for adult education in the workplace?

Who participates

What percentage of the workforce accesses adult education and training per year and during a working life? How is access facilitated? Are the workers in

need actually targeted and participating? How successful has prior learning assessment and recognition (PLAR) been in removing the barriers to recognition of credentials from private trainers, colleges and universities and courses offered in house? In addition to cost, what other barriers to education are perceived by potential adult learners (especially those not in the workforce)? What incentives work for the learner?

What outcomes, how effective

What do we know about the outcomes and impacts of adult education and training? With respect to credentials, what percentage of these courses are offered for credit and how much does this matter to potential learners? Can there be common definitions established for certificates and diplomas awarded by post-secondary institutions?

Quality

What is the quality of the training provided by PSE institutions, and do participants continue to value this training five years out? Is there a perceived difference between the quality and applicability of training provided in house within organizations and that provided by PSE institutions? To what extent have partnerships between private-sector organizations and post-secondary institutions increased the transferability of credit recognition? What role do professional and trade associations play in mediating

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these relationships? What approaches have been the most successful, especially in assisting the move of unemployed participants to employed status?

Value added

To what degree does learning for adult learners create social impacts? Is it fundamentally transformational?

Adult literacy

What are the trends in adult literacy within the labour market and how well are adult education and training opportunities addressing the challenges of adult literacy?

Public policy issues

Should there be a formal linkage of Employment Insurance and Welfare with adult education and training? Should there be expectations for participation in adult education as a condition for welfare and EI recipients?

DATA STRATEGY

- Much information has been generated by the Adult Literacy and Lifeskills Survey (ALLS), International Adult Literacy Survey (IALS), Pan-Canadian Education Indicators Program (PCEIP), Adult Education and Training Survey (AETS). A predominant conclusion to be drawn from these data is that the persons who need adult education the most are those least likely to be the beneficiaries from the status quo. This should be the focus of future data-collection activities.
- Future data collection and future programmatic interventions should emphasize those in Levels 1 and 2 of the International Adult Literacy Survey (IALS)(approximately 42% of the Canadian Labour Force).

FUTURE DATA EXPECTATIONS

The following are additions to many of the measures of affordability specified in Section 8.

Labour-market linkages

- Employer satisfaction with adult education providers other than in-house providers.

Provision

- Percentage of adult education provided by the various PSE providers.
- Reasons for unmet need—learners and employers.

Participation

- Participation rate in adult learning (annual data)
 - Percentage of the adult population (16 to 65 years) receiving adult education and training in a specified time frame; data by program or credential, prior educational-attainment level, gender, region, sub-population (annual data, time series for trends).
 - Percentage of labour force receiving formal on-the-job training by labour-market sector and organization size.

- Number of job-related certificates and diplomas held by workforce (16 to 65 years), by labour-market sector.

Outcomes

- Adult literacy levels by sector, region and time series.
- Satisfaction with outcomes of adult-education courses and programs; particularly targeted at those unemployed or underemployed at the time of participation.
- Labour-market outcomes—labour-market status (including movements in and out of the labour market) of participants in adult education compared with over-all population.

Financing

- Sources of support for adult education (government, learner, employer) by labour-market sector, gender, prior educational attainment. International benchmark.
- Employer financing of work-related training—expenditures and share of payroll, by labour-market sector, and company size, including focus on small- to medium-size enterprises (SMEs).

KEY DATA PRIORITIES

Table 2.7.1 **First wave—priority indicators for pan-Canadian implementation**

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
Literacy	Adult literacy—OECD levels	Population aged 16 to 65	ALLS
Participation	Participation rate in adult education Percentage of labour force receiving formal job-related training	Population aged 16 to 65 years receiving adult education and training in a specified time frame; data by program or credential, prior educational attainment level, gender, region, sub-population By labour-market sector; and organization size	AETS SLID
Provision	Percentage of adult education provided by type of PSE provider	By region	PSIS
Financing	Sources of support for adult education	Employer, learner, government; by labour-market sector, gender, prior educational attainment	ALLS

Table 2.7.2 **Priority management and context data**

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
Attainment	PSE attainment levels of adult population in Canada	By type of PSE credential, gender, region	Statistics Canada

Table 2.7.3 **Second wave—priority indicators for implementation**

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
Credentials	Number of job-related credentials	Workforce (16 to 65 years), by labour-market sector	AETS
Financing	Employer financing of work-related training: expenditures and share of payroll	By labour-market sector, and company size (include focus on small- to medium-size enterprises)	Inadequate instruments
Satisfaction	Learner and employer satisfaction with adult education	By labour-market sector, target vulnerable sectors	AETS

Table 2.7.4 **Critical framework issues and data gaps to be addressed**

ISSUE	ACTION
Need to enhance outcomes and impacts	Need a conceptual framework on factors for success in adult education and metrics to assess what works best under what circumstances
Lack of regular information on adult learners	Sustainable funding of collecting adult learning (e.g., new training/education module of SLID) Funding for the new proposed ASETS Funding of the new proposed OECD adult skill survey (PIAAC)
Lack of understanding of the low participation in learning of adults with lower skills	In-depth analysis and dissemination of the recent survey on the Level 1-2 of IALS
Lack of information on financing of adult education	Sustainable funding for WES Revised survey content on WES to include information on how employers support adult learning

ACRONYMS
FOR INSTRUMENTS

ALLS	Adult Literacy and Life Skills Survey
IALS	International Adult Literacy and Lifeskills Survey
AETS	Adult Education and Training Survey
PCEIP	Pan-Canadian Education Indicators Program
WES	Workplace Employee Survey
PIAAC	Program for International Assessment of Adult Competencies
SLID	Survey of Labour and Income Dynamics
PSIS	Post-secondary Student Information System
ASETS	Access and Support to Education and Training Survey

8. Affordability

WHAT WE ARE TRYING TO ACHIEVE

- That post-secondary education be affordable for learners and for Canadian society. The level of tuition fees charged needs to provide value for money in all areas of PSE.
- That finances not be a barrier to access and completion, no qualified learner should be denied the opportunity to undertake or complete PSE studies only for want of financial means.
- That the overall PSE sector be cost-effective and sustainable and able to attract and retain top-quality faculty and students, and provide them with high-quality resources and a suitable physical environment for teaching, learning, research and community service.

POLICY ISSUES

- Public perception of affordability for learners and cost-effectiveness of the sector
- Public and private returns on PSE
- The impact of costs on access and program choice
- Sources of income for learners' education and living costs
- Modes of public subsidy
- Student debt and debt repayment
- The perceived and real return on investment of private training programs
- Financing for the PSE sector
- Cost-efficiency and sustainability (physical and human resource base) of PSE institutions
- Adaptability of the PSE sector to meet emerging challenges
- International competitiveness of the PSE sector for recruiting and retaining talent

RESEARCH QUESTIONS

Costs of PSE and sources of income for PSE learners

What are the real costs of PSE and the sources of income available to learners for different programs, in different regions of Canada and diverse learner groups, with the data disaggregated for under-represented groups. To what extent are learners and their families fully aware of and planning for the real costs and sources of financing for PSE?

Affordability

What is the evidence for real financial barriers to access and persistence, in particular for students from under-represented groups and from different regions of Canada? There is a need to disentangle the relative impacts of price constraints (cost are perceived as higher than benefits), cash constraints (the availability of money to pay for the costs), and debt aversion and explore the consequences of these impacts for policy. The Canada Millennium Scholarship Foundation has published extensively in this area.

Differential impacts

What is the impact of high-cost differential tuition fees on student enrolment, especially for under-represented groups?

Limits to private support

Is there a definable maximum proportion or percentage of a university degree or college credential that should be supported by tuition fees?

Student debt

Understanding the impact of debt levels (individual and larger social impacts, e.g., delaying home purchase and family) and means of managing debt among learners. What is the impact of debt relief and interest reduction? Are disadvantaged groups using the sources of support at their disposal in an effective way? What are the costs and benefits of providing student aid to learners in programs managed by private providers without any form of accreditation? What proportion of student borrowers have a genuine problem paying their student debt, and what are the underlying factors for this problem?

Impacts of, and alternatives to, current approaches to student aid

What are the individual and social implications of the current balance of loans, bursaries and loan-remission measures for post-secondary students, especially for those most likely to face financial and other barriers before, during and after their post-

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secondary studies? Who benefits from the various forms of PSE subsidies, e.g., grants, loans, income tax refunds? To what degree should the form of student assistance provided be influenced by student age and family circumstance, especially for adult learners? What can we learn from international experience and experiments, including international experiences with contingent loan-repayment schemes?

Revenues

Given recent and forecast trends for institutional revenue streams by PSE sector what are the implications for learners and for governments of the future balance of public and private shares of the cost of PSE? To what extent are the funding shares reflective of public and private benefits?

Financial sustainability of PSE institutions

How sustainable are PSE institutions in Canada? What is the short-term and long-term viability of the physical assets and core educational infrastructure,

e.g., libraries and computing and communications infrastructure? What measures are there of the long-term sustainability of the human resources and competitiveness of faculty and administrative (including student service) salary levels in an international context? What measures do we have of the sustainability of private training institutions given their different infrastructure and cost structures?

Impacts of research activity

What is the evidence, pro and con, that increased sponsored-research activity has negatively affected the capacity of institutions to deliver high-quality, cost-effective education?

Public opinion

To what extent is there public support for the current allocation of the costs of PSE between the public and private purse? Is affordability seen as a barrier to access?

DATA STRATEGY ISSUES

- Relevant data exist in various forms, but are not necessarily easy to access and compare among jurisdictions and PSE providers. The data strategy needs to acknowledge the fact that more systematic and comparable data collection and reporting should not result in increased response burden.
- There are very few data available for private providers. Should provision of data be a prerequisite for eligibility for student aid for students attending programs at these institutions?
- There are no reliable data on private training schools outcomes (short-term and long-term).

FUTURE DATA EXPECTATIONS¹⁶

The costs of accessing higher-education learning (time series by PSE sector and region, tuition disaggregated by program type for high-cost programs), comparisons with consumer price index

- Tuition: undergraduate and specialized programs
- Special fees (which may have substituted for caps on tuition fees)
- Books and ancillary educational supplies
- Living and transportation
- Childcare

Income sources available to and used by learners (time series by PSE sector, program and region including data disaggregated by under-represented groups)

- Employment while studying
- Parental support
- Repayable student loans (federal and provincial)
- Forgivable loans and bursaries
- Merit-based scholarships
- Co-op/apprenticeship programs

Student debt—Data by program, institution type and region (time series, including data disaggregated by under-represented groups), National Graduate Survey (NGS)

- Debt levels at graduation (percentage of population and those with debt)
- Repayment profiles (link with employment and earning status)
- Means of coping with debt

Learner and family attitudes to affordability

- Adequacy of information and understanding of costs and resources required
- Attitude toward debt (especially among under-represented groups)
- Impact of cost and debt on program and institution choice

Federal support for PSE

- Transfer payments (time series)
- Student support—Repayable (e.g., loans) and non-repayable (e.g., bursaries and scholarships)
- Tax incentives and benefits
- Sponsored research—Granting council (direct, indirect) and contract support

- Research training (scholarships)
- Other

Provincial support for PSE

- Operating grants to institutions
- Student support—Repayable (e.g., loans) and non-repayable (e.g., bursaries and scholarships)
- Sponsored research
- Other

Revenue sources and amounts for PSE institutions—time series by PSE provider, type of PSE provider and region.

- Macro level—Public and private expenditures on PSE (Pan-Canadian Education Indicators Program) by region.
- By institution—Operating costs and revenues¹⁷
 - Total costs
 - Revenues—Provincial operating grants
 - Revenues—Tuition (Canadian and international students)
 - Revenues—Other sources
- By institution—Sponsored research
- Revenue by full-time equivalent student—By institution

Expenditures and measures of sustainability—As percentage of operating costs and per full-time equivalent student.

- Amounts and types of expenditures, including:
 - Library expenditures
 - IT resources
 - Maintenance, modernization and infrastructure expenditures (also as percentage of building replacement costs)
 - Faculty and staff salaries
 - Student assistance
 - Research (e.g., as percentage of operating costs)
- Student services and assistance
 - Financial assistance counselling
 - Student assistance from the operating budget per full-time equivalent student
- Space indicators

Public perceptions

- Affordability
- Return on investment (labour-market and personal)
- Efficiency of the sector

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KEY DATA PRIORITIES

Table 2.8.1 **First wave—priority indicators for pan-Canadian implementation**

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
Expenditures on PSE	Public expenditures on PSE Private expenditures on PSE	By type of PSE provider, region, time series	CESC EAG HERD
Tuition	Tuition rates Tuition as a percentage of total costs to learner	By credential type, program of study, type of PSE provider, region, time series By level of credential and type of PSE provider and whether need to move from home base to access PSE program	Statistics Canada
Student debt	Debt level on graduation Time to repayment Default rate	By level of credential, PSE provider type, age cohort, gender and region By level of credential, PSE provider type, age cohort, gender and region and employment and income status By level of credential, PSE provider type, age cohort, gender and region and employment and income status	CSLP administrative data LAD NGS

Table 2.8.2 **Priority management and context data**

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
Institutional expenditure profiles	Salaries Maintenance and operations Library IT Student assistance	By institution, and type of PSE provider, region	Statistics Canada and CAUBO
Public opinion	Affordability—perceived and awareness of real costs Perceived return on investment	By type of PSE provider By type of PSE provider	Public opinion surveys

Table 2.8.3 **Second wave—priority indicators for implementation**

POLICY ISSUE	INDICATOR	COVERAGE	RELEVANT INSTRUMENTS
Student support	Sources of student support Levels of support Impact of cost and availability of non-repayable support on PSE program choice	By type of support, whether repayable, program of study, type of PSE provider, age cohort, sub-population High school leavers	YITS PEPS SED

Table 2.8.4 **Critical framework issues and data gaps to be addressed**

ISSUE	ACTION
Lack of comparable financial data	Harmonization of concepts and definitions for financial data Re-design institutional survey instruments to collect comparable financial data Further analysis of public account data
Lack of information on financing PSE learner	Support the funding of the new proposed ASETS survey Sustainable funding for NGS, SED

ACRONYMS FOR INSTRUMENTS

NGS	National Graduate Survey
SED	Survey of Earned Doctorates
HERD	Higher Education Expenditures on R&D (Statistics Canada)
GERD	Gross Expenditures on R&D (Statistics Canada)
CAUBO	Canadian Association of University Business Officers
YITS	Youth in Transition Survey
PEPS	Post-secondary Education Participation Survey (Discontinued, replaced by ASETS)
ASETS	Access and Support to Education and Training Survey
EAG	Education at a Glance
CESC	Canadian Education Statistics Council
CSLP	Canada Student Loans Program
LAD	Longitudinal Administrative Data
Various surveys and research carried out by the Millennium Scholarship Foundation	

Post-secondary Education Surveys

A. POST-SECONDARY STUDENT INFORMATION SYSTEM PSIS (FORMERLY ENHANCED STUDENT INFORMATION SYSTEM ESIS), ANNUAL

The Post-secondary Student Information System (PSIS), formerly the Enhanced Student Information System (ESIS), is a national survey that provides detailed information on enrolments and graduates of Canadian PSE institutions in order to meet policy and planning needs in the field of post-secondary education.

In 2001, it began to replace the University Student Information System (USIS), the Community College Student Information System (CCSIS) and the Trade/Vocational Enrolment Survey (TVOC) with a single survey offering common variables for all levels of post-secondary education. *Upon full implementation, PSIS will capture annually, enrolment and graduate information from Canadian public post-secondary institutions.*

PSIS collects information pertaining to the programs and courses offered at an institution, as well as information regarding the students themselves. PSIS also collects information on the program(s) and courses in which students were registered, or from which they have graduated. PSIS is further designed to collect continuing education data. This information is available from the PSIS Cross-sectional Files.

In addition, PSIS has been designed to provide longitudinal data. It creates a unique *longitudinal record* for each post-secondary student in Canada which will, in turn, provide a history of flows taken by a student as he/she progresses through the education system. *Upon commitment from post-secondary education institutions*, PSIS will become a means of following students throughout their academic careers in order to build a comprehensive picture of student flows—that is, their mobility and pathways within Canadian post-secondary education institutions.

Historical enrolment and graduate data from previous surveys have been converted using PSIS variable definitions and code sets to maintain the historical continuity of the statistical series.

Survey challenges

Responding to this survey is mandatory. Data are collected directly from survey respondents and extracted from administrative files: *Although it is mandatory, the survey suffers from lack of institutional compliance.*

The survey collects student administrative data files from post-secondary institutions: *Data is often not collected and reported in the format that is required by Statistics Canada which requires more work in cleaning and streamlining the data.*

The initial contact consists of a written data request via e-mail. Subsequent contacts are made via telephone, e-mail and possibly via an on-site visit with the respondent(s) at the institution(s): *Statistics Canada would like to implement an initiative that would assist institutions in the data collection exercise. However, this is not currently available at Statistics Canada. The department suffers from the lack of financial and human resources to assist institutions in the collection and reporting of PSIS data.*

The collection method used is electronic. It consists of sending electronic flat files compiled and validated by Statistics Canada's E7 Data Verification Application (E7-DVA). The E7-DVA is an application that is used to verify data and identify problems within an institution's input files before they are sent to Statistics Canada: *The survey framework has been changed, not all institutions have aligned their data collection with the new survey framework.*

Respondent follow-up procedures used are contacting institution(s) via telephone or e-mail: *Long process requires unduly long periods of time, decreasing the value of the information.*

Until fully integrated into PSIS reporting, some respondents still report on questionnaires for the Community College Student Information System (CCSIS) and the Trade/Vocational Enrolment Survey (TVOC).

Although PSIS was originally designed to provide both college and university data, only recent university data is available. The latest reliable college data goes back to 1999–2000. Longitudinal data for each post-secondary student in Canada could also be made available if the use of PSIS was to be maximized. Such a feature would provide more information on:

- pathways taken by students as they progress through the education system; and
- student persistence, program change and time to completion.

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B. NATIONAL GRADUATE SURVEY, NGS, OCCASIONAL

The National Graduate Survey (NGS) measures the short to medium-term labour-market outcomes of graduates from Canadian public university, community college, and trade-vocational programs.

This survey was designed to determine such factors as:

- The extent to which graduates of post-secondary programs had been successful in obtaining employment since graduation;
- The relationship between the graduates' programs of study and the employment subsequently obtained;
- The graduates' job and career satisfaction;
- The rates of under-employment and unemployment;
- The type of employment obtained related to career expectations and qualification requirements; and
- The influence of post-secondary education on occupational achievement.

Each graduating class is interviewed twice: two years after graduation (National Graduates Survey) and five years after graduation (Follow-up of Graduates–FOG).

The survey target population are graduates from Canadian public post-secondary education institutions (universities, colleges, trade schools) who graduated or completed the requirements for degrees, diplomas or certificates during the reference calendar year.

Those excluded are: graduates from private post-secondary education institutions; completers of continuing-education programs (unless these led to a degree, diploma or certificate); part-time trade course completers; persons who completed vocational programs lasting less than three months; persons who completed vocational programs other than in the skilled trades (e.g., basic training and skill development); completers of provincial apprenticeship programs and those living outside of Canada or the United States at the time of the survey.

The survey involves a longitudinal design with graduates being interviewed at two different times: at two and five years after graduating from post-secondary institutions in Canada. The sample design has been developed using a “funnel-shaped” approach, where only graduates that respond to the initial interview are traced for the follow-up interview.

There are three variables used for stratification: geographical location of the institution, level of certification, and field of study.

There are 13 geographical locations: the 10 provinces and the three Northern Territories.

There are five levels of certification: trade/vocational programs, college programs, bachelor's degree, master's degree, and doctorate. As for the stratification level for the fields of study, it depends on the levels of certification. There are eight categories of field of study for the trade/vocational level and nine categories each for the college level and the three university level degrees (i.e., bachelor's, master's and doctorate) combined. As with previous iterations of the National Graduates Survey (NGS), the field of study was obtained by grouping the Community College Student Information System (CCSIS) and the University Student Information System (USIS).

For Follow-up of Graduates, it was determined that due to conceptual and sample requirement issues, it would be beneficial for the aims of the project as a whole to not follow-up with the trade/vocational graduates who responded to the NGS. Moreover, as part of the survey, the respondent was asked to confirm the certification level. Therefore, the FOG2000 sample is comprised of all NGS2000 respondents whose reported variable indicated that they earned either a college diploma or certificate, a Bachelor's degree, a Master's degree or a Doctorate in 2000.

Survey challenges

Data collection for this reference period: 2005-04-27 – 2005-07-24: ***NGS needs to be extended to cover a 10-year period. The frequency of the survey—every five years—diminishes its value when the PSE system in a period of rapid change.***

Responding to this survey is voluntary. Data are collected directly from survey respondents.

Computer-assisted telephone interviews were conducted with graduates living in Canada or in the United States: ***Financial and human resources issues constraints impact negatively on the survey coverage.***

Also, some institutions do not have the adequate resources to properly use the technology tools to collect the data. In a number of instances, some institutions request the assistance of Statistics Canada to make sure that the data that they are collecting is accurate. At the same time, Statistics Canada needs financial and human resources to cross-check the accuracy and the usefulness of the data submitted by institutions.

C. SURVEY OF EARNED DOCTORATES, SED, ANNUAL

This survey is designed to determine such factors as:

- Labour-market and mobility plans after graduation;
- How graduates funded their doctoral studies and how much, if any;
- Debt they accumulated during their studies; and
- The time required to complete a doctoral degree.

In addition, information on educational history and socio-economic background is collected.

The Survey of Earned Doctorates (SED) is an annual census of doctorate recipients in Canada that was conducted for the first time on a national basis during the 2003–2004 academic year. The basic purpose of this survey is to gather data about all doctoral graduates in Canada to inform government, associations, universities and other stakeholders on the characteristics and plans of these highly qualified graduates as they leave their doctoral programs.

These data are important in improving graduate education by providing governmental and private agencies with the information necessary to make program and policy decisions. Data about an institution's own doctorate recipients are also provided to, and used by, research offices of institutions who participate in the survey.

The survey's key data objectives are:

- To evaluate the impact of the various sources of institutional funding;
- To gather information on the retention of doctoral students in Canada;
- To gain a better understanding of post-graduate education financing and debt level;
- To allow labour-market planners to assess the additions to the domestic stock of highly qualified human resources in various fields; and
- To allow an examination of the path to receipt of doctoral degrees and the impact of foreign students.

The data from the SED can be used by universities and governments to make policy decisions that affect graduate education throughout Canada, by federal agencies to inform parliament and to make decisions about financial commitments that affect graduate education throughout Canada; and, in the evaluation of graduate education programs, strategic planning at the provincial level, labour force projections, and affirmative action plans at all levels.

The target population is doctoral graduates from Canadian post-secondary education institutions who have obtained their degree during the reference period. ***The survey population excludes institutions that did not participate in the survey during the reference period.***

The target population is identified from the list of Canadian post-secondary institutions granting doctoral degrees. This list is compiled and kept up-to-date by the Centre for Education Statistics of Statistics Canada. Every listed institution was invited to participate in this survey. Institutions with no doctoral graduates for the survey reference year were excluded from the target population.

Survey challenges

Responding to this survey is voluntary. Data are collected directly from survey respondents.

All doctoral graduates from participating institutions are invited to fill in a paper SED questionnaire, which is distributed by their institutions. The graduates can return the completed questionnaire directly to Statistics Canada or to their institutions. Institutions mail back the completed questionnaires to Statistics Canada. Follow-up calls with non-respondents are made by Statistics Canada.

D. SURVEY OF INCOME AND LABOUR DYNAMICS, SLID, ANNUAL

The survey's main objective is the understanding of the economic well-being of Canadians: what economic shifts do individuals and families live through, and how does it vary with changes in their paid work, family make-up, receipt of government transfers or other factors? The survey's longitudinal dimension makes it possible to see such concurrent and often related events. The survey has an additional dimension: the changes experienced by individuals over time.

SLID is the first Canadian household survey to provide national data on the fluctuations in income that a typical family or individual experience over time which gives greater insight on the nature and extent of poverty in Canada. Added to the longitudinal aspect are the "traditional" cross-sectional data: the primary Canadian source for income data and providing additional content to data collected by the Labour Force Survey (LFS).

Particularly in SLID, the focus extends from static measures (cross-sectional) to the whole range of transitions, durations, and repeat occurrences (longitudinal) of people's financial and work situations. Since their

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family situation, education, and demographic background may play a role, the survey has extensive information on these topics as well.

The survey target population are all individuals in Canada, excluding residents of the Yukon, the Northwest Territories and Nunavut, residents of institutions and persons living on Indian reserves. Overall, these exclusions amount to less than 3 percent of the population.

This is a sample survey with a cross-sectional design and a longitudinal follow-up. The samples for SLID are selected from the monthly Labour Force Survey (LFS); and thus, share the latter's sample design.

The LFS sample is drawn from an area frame and is based on a stratified, multi-stage design that uses probability sampling. The total sample is composed of six independent samples, called rotation groups, because each month one sixth of the sample (or one rotation group) is replaced.

The SLID sample is composed of two panels. Each panel consists of two LFS rotation groups and includes roughly 15,000 households. A panel is surveyed for a period of six consecutive years. A new panel is introduced every three years, so two panels always overlap.

Survey challenges

Responding to this survey is voluntary. Data are collected directly from survey respondents and extracted from administrative files.

For each sampled household in SLID, interviews are conducted over a six-year period. Every year in January, interviewers collect information regarding respondents' labour-market experiences during the previous calendar year. Information on educational activity and family relationships is also collected at that time. The demographic characteristics of family and household members represent a snapshot of the population as of the end of each calendar year.

To reduce response burden, respondents can give Statistics Canada permission to use their T1 tax information for the purposes of SLID. Those who do so are only contacted for the labour interviews. Over 80% of SLID's respondents give their consent to use their administrative records.

E. YOUTH IN TRANSITION SURVEY, YITS, BIENNIAL

The Youth in Transition Survey (YITS) is a longitudinal survey designed to examine the patterns of, and influences on, major transitions in young people's lives, particularly with respect to education, training and work. The survey is undertaken jointly by Statistics Canada and Human Resources and Skills Development Canada.

Content includes measurement of major transitions in young people's lives including virtually all formal educational experiences and most market experiences, achievement, aspirations and expectations, and employment experiences. The implementation plan encompasses a longitudinal survey of each of two cohorts, ages 15 and 18 to 20, to be surveyed every two years.

The results from the Youth in Transition Survey will have many uses. Human Resources and Social Development Canada will use them to aid policy and program development. Other users of the results include educators, social and policy analysts, and advocacy groups. The information will show how young adults are making their critical transitions into their adult years. Information from the survey can be used in developing programs to deal with both short-term and long-term problems or barriers that young adults may face in their pursuit of higher education or in gaining work experience. Information from the survey will help to evaluate the effectiveness of existing programs and practices, to determine the most appropriate age at which to introduce programs, and to better target programs to those most in need.

Young adults themselves will be able to see the impact of decisions relating to education or work experiences. They will be able to see how their own experiences compare to those of other young adults.

The Program for International Student Assessment PISA/YITS is one project. It is an international assessment of the skills/knowledge of 15-year-olds, which aims to assess whether students approaching the end of compulsory education have acquired the knowledge and skills that are essential for full participation in society.

The 15-year-old respondents to the Reading Cohort (conducted in 2000) participated in both PISA and YITS. Since in 2002, they have been followed up longitudinally by YITS. The 15-year-old respondents to the Mathematics Cohort (conducted in 2003) participated in both PISA and YITS. They will not be followed up longitudinally.

The survey population for the 18- to 20-year-old cohort includes persons born in the years 1979 to 1981. Geographically, the target population excludes the Northern Territories, Indian reserves, Canadian Forces bases and some remote areas.

The survey population for the Reading Cohort (15-year-olds) comprises persons who were born in 1984 and were attending any form of schooling in the ten provinces of Canada. Schools on Indian reserves were excluded, as were various types of schools for which it would be infeasible to administer the survey, such as home schooling and special needs schools. These exclusions represent less than 4% of 15-year-olds in Canada.

As comparability with the previous cycle survey results was an important objective of Cycle 3–YITS, only minimal modifications were made to the wording of the questions.

YITS is a sample survey with a longitudinal design:

18- to 20-year-old cohort

Factors such as the high mobility rate of the 18- to 20-year-old cohort and its relatively low incidence at the household level led to a stratified multi-stage sample design based on the use of the Labour Force Survey sample, drawing from currently active and rotate-out households. Within each household, one person in the target population was pre-selected for YITS. The initial sample size was 29,000 persons.

Reading cohort (15-year-olds)

The sample design for the Reading Cohort (15-year-olds) entails two-stage probability sampling, with a stratified sample of 1,200 schools selected at the first stage and a sample of eligible students selected within each sampled school. The initial student sample size for the reading cohort which was conducted in 2000 was 38,000 persons.

Among the Reading Cohort (15-year-olds) and the 18- to 20-year-old cohort, only those who responded in Cycle 2 were re-contacted in Cycle 3. The resulting sample size was 26,854 for the Reading Cohort (15-year-olds) and 18,743 for the 18 to 20 year-old cohort.

Survey challenges

Data collection for this reference period: 2004-02-15 – 2004-06-15.

Responding to this survey is voluntary. Data are collected directly from survey respondents.

Collection for Cycle 3 took place from mid-February to mid-June 2004 using computer-assisted telephone interview (CATI). The response rate for the 18- to 20-year-old cohort was 78.9%. The response rate for the Reading Cohort (15-year-olds) was 84.3%. The combined response rate for both cohorts in Cycle 3 was 82.1%.

F. UNIVERSITY AND COLLEGE ACADEMIC STAFF SURVEY, UCASS, ANNUAL

This survey is a census with a cross-sectional design and is conducted to obtain national comparable data concerning the socio-economic characteristics of university full-time staff.

The target population of this survey is full-time teaching staff in degree-granting institutions that have a teaching assignment and are under contract for twelve months or more. Administrative and support staff are excluded, as are staff solely engaged in research. Teaching and research assistants are also excluded.

Survey challenges

Responding to this survey is voluntary. Data are collected directly from survey respondents.

The survey is designed to collect information on the characteristics of full-time teachers in degree-granting institutions. Each year Statistics Canada sends out a "Systems Manual" which lists all the data elements which are to be reported by all the institutions. Every institution is asked to submit the data to Statistics Canada by choosing one of the following options:

- a) individual teacher records on hard copy;
- b) individual teacher records on magnetic tape.

There are 83.5% of records which are reported on tape and the balance reported on pre-printed documents.

Following the suspension of the Annual Community College Educational Staff Survey (ACCESS), in 2004, Statistics Canada suspended data collection on part-time university faculty and all college faculty; and has continued to collect and issue data only on full-time university faculty.

G. TUITION, LIVING AND ACCOMMODATION COSTS SURVEY, TLAC, ANNUAL

The survey is a census with a cross-sectional design. Its purpose is to collect tuition fees and living accommodation costs concerning all universities and degree-granting colleges across the country. The Survey was developed to provide student financial information (tuition fees and living accommodation costs) on all universities and degree-granting colleges in Canada.

This information:

- gives associations and governments a better understanding of the student financial position for that level of education;
- helps in the development of policies in this sector;
- helps measure the impact of increased tuition fees; and
- helps measure the impact of federal/provincial support.

The target population is all degree-granting institutions (universities and colleges) in Canada.

Survey challenges

Responding to this survey is voluntary. Data are collected directly from survey respondents.

All universities and degree-granting colleges report via questionnaire.

H. SURVEY OF INTELLECTUAL PROPERTY COMMERCIALIZATION IN THE HIGHER EDUCATION SECTOR, ANNUAL

The survey is a census with a cross-sectional design. Its objective is to assure the availability of pertinent information to monitor science and technology related activities and to support the development of science and technology policy.

The topic studied is intellectual property management at universities and research hospitals. The data are used to determine how to maximize the benefits resulting from public sector research. Data users include the federal and provincial governments and university administrators and researchers.

Science and Technology (S&T) and the information society are changing the way we live, learn and work. The concepts are closely intertwined: science generates new understanding of the way the world works, technology applies it to develop innovative products and services and the information society is one of the results of the innovations. The Science, Innovation, and Electronic Information Division (SIEID) measures and explains the social and economic impacts of these changes. The purpose of this Program is to develop useful indicators of S&T activity in Canada based on a framework that ties them together in a coherent picture.

The target population is members of the Association of Universities and Colleges of Canada (AUCC), as well as the university-affiliated research hospitals. The latter includes some members of the Association of Canadian Teaching Hospitals (ACTH) and some other hospitals reporting R&D activity on the Annual Hospital Survey.

Instrument design

In early 1997, Statistics Canada commissioned a report by The Impact Group, which was entitled "Commercialization of Intellectual Property in the Higher Education Sector: A Feasibility Study." It recommended a set of 50 indicators to measure the components of the commercialization process.

The Association of Universities and Colleges of Canada (AUCC) recommended additional indicators and facilitated consultations with university representatives.

The 2003 survey was redesigned by a working group consisting of the AUCC, the Association of University Technology Managers (AUTM), Industry Canada and Statistics Canada.

For each survey cycle, respondent comments and observed difficulties in completing particular questions are routinely gathered and used to make (mostly minor) changes to the next questionnaire and the survey handbook.

Survey challenges

Responding to this survey is voluntary. Data are collected directly from survey respondents.

The survey is mailed to the Vice-President of Research of the university or the CEO of the hospital. The accompanying letter mentions the collaboration of the AUCC in the development of the survey. *If the institution has a technology transfer office*, the questionnaire will typically be sent there for completion. However, for large universities, the information must usually be gathered from several different offices, such as the Office of Research Contracts, the Office of the VP Research and the technology transfer office.

Follow-up for individual institutions is done by telephone. General e-mail reminders are also sent out by Statistics Canada and the AUCC. For the 2004 survey, collection spanned nine months. The collection of this survey takes longer than normal because it is still relatively new, participation is voluntary and some of the information must be compiled manually.

I. FINANCIAL INFORMATION OF UNIVERSITIES AND COLLEGES SURVEY, (FIUC), ANNUAL

This survey is a census with a cross-sectional design. Its purpose is to collect financial information (income and expenditures) on all universities and degree-granting colleges across the country.

This information:

- gives associations and governments a better understanding of the financial position of universities and degree-granting colleges;
- helps in the development of policies in this sector;
- helps measure impact of increased tuition fees; and
- helps measure impact of federal/provincial support.

The target population is all degree-granting institutions (universities and colleges) in Canada.

Survey challenges

Responding to this survey is voluntary. Data are collected directly from survey respondents and extracted from administrative files. All universities, except for Ontario CAUBO universities, report via questionnaire. The Financial Information of Universities and Colleges (FIUC) questionnaire is both paper and electronic (Excel), in both CAUBO (Canadian Association of University Business Officers) and non-CAUBO formats. Most respondents reply via electronic questionnaire on diskette.

Ontario CAUBO universities report to their own collection authorities (Council of Finance Officers—Universities of Ontario (COFO)). This information is sent to Statistics Canada (STC) as one large flat file. A mapping and integration process is then done to convert the COFO data into the CAUBO format database.

J. LABOUR FORCE SURVEY, LFS, MONTHLY

The Labour Force Survey (LFS) provides estimates of employment and unemployment, which are among the most timely and important measures of performance of the Canadian economy.

With the release of the survey results only 13 days after the completion of data collection, the LFS estimates are the first of the major monthly economic data series to be released.

The survey was developed following the Second World War to satisfy a need for reliable and timely data on the labour market. Information was urgently required on the massive labour-market changes involved in the transition from a war to a peace-time economy. The main objective of the LFS is to divide the working-age population into three mutually exclusive classifications—employed, unemployed, and not in the labour force—and to provide descriptive and explanatory data on each of these.

LFS data are used to produce the well-known unemployment rate as well as other standard labour-market indicators such as the employment rate and the participation rate.

The LFS also provides employment estimates by:

- industry;
- occupation;
- public and private sector; and
- hours worked and much more, all cross-classifiable by a variety of demographic characteristics. Estimates are produced for Canada, the provinces, and a large number of sub-provincial regions.

For employees, wage rates, union status, job permanency and workplace size are also produced.

These data are used by different levels of government for evaluation and planning of employment programs in Canada. Regional unemployment rates are used by Human Resources and Social Development Canada to determine eligibility, level and duration of insurance benefits for persons living within a particular employment insurance region. The data are also used by labour-market analysts, economists, consultants, planners, forecasters and academics in both the private and public sector.

es and inmates of institutions. These groups together represent an exclusion of less than 2% of the population aged 15 and over.

The current LFS questionnaire was introduced in 1997. At that time, significant changes were made to the questionnaire in order to address existing data gaps, improve data quality and make more use of the power of Computer Assisted Interviewing (CAI).

The changes incorporated included the addition of many new questions. For example, questions were added to collect information about wage rates, union status, job permanency and workplace size for the main job of currently employed employees. Other additions included new questions to collect information about hirings and separations, and expanded response category lists that split existing codes into more detailed categories.

The questionnaire was also extensively restructured in terms of the order of the questions and the flows between questions. For example, the job description questions about the current (or most recent) job were moved near the beginning of the questionnaire so that this information (especially the class of worker) could be used to control some of the question flow, question wording and applicable response categories in later questions. As well, some questions known to be problematic were modified through rewording or the inclusion of additional questions (e.g., the hours of work question series and the identification of persons on temporary layoff).

Since the existing questionnaire had been designed as a paper questionnaire, the questionnaire redesign represented an opportunity to make extensive use of the power of CAI. This included the incorporation of question wording that depended upon answers to earlier questions, more complex question flows and an extensive set of on-line edits checking for logical inconsistencies.

The implementation of the new questionnaire followed an extensive process of user consultations, questionnaire development and questionnaire testing. The questionnaire was phased in over a five-month period between September 1996 and January 1997.

Sampling

This is a sample survey with a cross-sectional design. The LFS uses a probability sample that is based on a stratified multi-stage design. Each province is divided into large geographic stratum. The first stage of sampling consists of selecting smaller geographic areas, called clusters, from within each stratum. The second stage of sampling consists of selecting dwellings from within each selected cluster.

The LFS uses a rotating panel sample design so that selected dwellings remain in the LFS sample for six consecutive months. Each month about 1/6th of the LFS sampled dwellings are in their first month of the survey, 1/6th are in their second month of the survey, and so on. One feature of the LFS sample design is that each of the six rotation groups can be used as a representative sample by itself.

Within selected dwellings, basic demographic information is collected for all household members. Labour force information is collected for all civilian household members who are aged 15 and over.

Since July 1995, the monthly LFS sample size has been approximately 54,000 households, resulting in the collection of labour-market information for approximately 100,000 individuals. It should be noted that the LFS sample size is subject to change from time to time in order to meet data quality or budget requirements.

The LFS sample is allocated to provinces and regions within provinces to meet the need for reliable estimates at various geographic levels. These include national, provincial, census metropolitan areas (large cities), economic regions and employment insurance regions.

Data sources

Responding to this survey is mandatory. Data are collected directly from survey respondents.

The LFS is conducted using Computer Assisted Interviewing (CAI) by a staff of trained interviewers located across the country. The first interview with a household (also known as the birth interview) is usually conducted in person by a field interviewer using a laptop computer.

This method of interviewing is known as Computer Assisted Personal Interviewing (CAPI). Interviews in subsequent months are conducted by telephone by regional office interviewers using Computer Assisted Telephone Interviewing (CATI) if the respondent grants permission to be contacted by telephone for subsequent interviews.

All of the data that are collected using laptop computers are transmitted to the appropriate regional office or directly to head office via modem, with the data encrypted in order to ensure that confidentiality is protected. All of the data received and collected at the regional offices are transmitted over a secure line to head office.

Proxy interviews are allowed for the LFS, which means that information can be collected for the entire household from any responsible household member. Such proxy reporting accounts for approximately 65% of information collected.

To save on collection costs and respondent burden in subsequent interviews, some information collected in the previous interview is not re-asked, but rather is pre-filled in the computer questionnaire and then verified with the respondent. This includes the list of household members, basic demographics, and some job description information for persons eligible for the labour force questions. As well, to minimize respondent burden for the elderly, persons aged 70 and over are not asked the labour force questions in subsequent interviews, but rather their labour force information is carried forward from their first interview.

PART II ENDNOTES

- 1 Orton, Larry. *A new understanding of post-secondary education in Canada: A discussion* (Ottawa: Statistics Canada, 2003). Catalogue no. 81-595-MIE No. 011.
- 2 Definition from Lisa Hudson and Dan Andersson, cited in *Measuring the social outcomes of learning: OECD Network B's Role and Perspective*. Proceedings of the OECD Copenhagen Symposium, 2006.
- 3 This approach requires the definition of meaningful sub-sectors of the PSE sector (see earlier discussion of the PSE sector) and recognizes the fact that there is great diversity in institutional characteristics across the PSE sector. A benchmark—or system average—can then be defined for a specific PSE sub-sector where there are families of institutions with similar characteristics and aspirations. This benchmark can then be a meaningful comparative indicator providing what is being considered is common to members of the family.
- 4 Available at <http://www.statcan.ca/english/rdc/productintro.htm>. Aboriginal Peoples Survey (APS), Canadian Community Health Survey (CCHS), Ethnic Diversity Survey (EDS), General Social Survey (GSS), Longitudinal Survey of Immigrants to Canada (LSIC), National Graduates Survey (NGS), National Longitudinal Survey of Children and Youth (NLSCY), National Population Health Survey (NPHS), Participation and Activity Limitation Survey (PALS), Survey of Labour and Income Dynamics (SLID), Workplace and Employee Survey (WES), Youth in Transition Survey (YITS).
- 5 United Nations. *Manual for the Development of a System of Criminal Justice Statistics* (New York: UN, 2003).
- 6 Service learning is a teaching model that offers a way to engage the academy and students with communities through structured curriculum-based experiential learning.
- 7 Statistics Canada. *Longitudinal Survey of Immigrants to Canada. Progress and Challenges of New Immigrants in the Workforce* (Ottawa: 2005). Catalogue No. 89-615-XIE.
- 8 As an example—British Columbia Co-operative Education Statistical Database provides for and encourages the adoption of consistent program guidelines and standards for quality co-operative education in B.C., and collects and disseminates standardized co-op statistical data related to co-op education programs from member institutions.
- 9 Riddell, Craig. *The Impact of Education on Economic and Social Outcomes: An Overview of Recent Advances in Economics* (Ottawa: Canadian Policy Research Network, 2006).
- 10 Polanyi, M. and Karen M. Andres. *Deliberative Democracy: An Emerging Determinant of Health and Well-Being?* Canadian Social Welfare Policy Conference (Ottawa: 2003).
- 11 Issues around quality of research and research training have been primarily integrated into Goal 2 and are not the focus of this section. Similarly issues around the cost of PSE provision are dealt with under Goal 8 "Affordability."
- 12 Barriers to participation and persistence are typically characterized as 1) academic, 2) financial, 3) awareness, interest and motivation. This section does not consider directly the financial barriers which are covered under Goal 8 "Affordability," but recognizes the interplay of financial and non-financial barriers.
- 13 Frenette, Marc. *Why Are Youth from Lower-income Families Less Likely to Attend University? Evidence from Academic Abilities, Parental Influences, and Financial Constraints*. (Ottawa: Statistics Canada, February 2007). Catalogue no. 11F0019MIE—No. 295.
- 14 Mendelson, Michael. *Aboriginal Peoples and Post-secondary Education* (Ottawa: Caledon Institute of Social Policy, 2006).
- 15 Auriol, Laudeline. *Labour market characteristics and international mobility of doctoral holders: results for seven countries*. OECD, STI Working Paper (Paris: February 2007).
- 16 It is notable that the largest number of statistics in default for the OECD *Education at a Glance* publication relate to the financial and human resources invested in education.
- 17 See Council of Ontario Universities Resource Book 2007 for examples of data available in some provinces.

1. Introduction

Part II of this report outlined in some detail the need for, and characteristics of, a pan-Canadian data strategy for PSE. This part of the report takes that analysis a step further to explore the question of moving from data to benchmarking. In brief, this requires close attention to the linkages—actual and desired—between PSE and wider social and economic goals being pursued in Canada.

As Part II indicated, the word data can have different meanings and serve different functions. These functions range from baseline data regarding context or system-input characteristics, to robust and telling indicators that allow for assessment of performance and progress over time or in comparison to other jurisdictions in terms of inputs, outputs and outcomes. Finally, data can be used to set numerical targets to which jurisdictions attach priority in terms of future attention.

In today's competitive, global economy, and in the current policy environment, which emphasizes accountability in publicly funded sectors of society, the move to measure outcomes has become fairly standard. Much effort has been devoted to designing, assembling and assessing data and indicators that shed light on the inputs, outputs, and, increasingly, outcomes of PSE in Canada.

A number of jurisdictions have gone a step further and established benchmarks for their PSE sector. While the notion of benchmarks has been interpreted differently in different countries, benchmarks are generally understood to refer to system averages. It should not be surprising that the methodologies, terminology and results of these exercises are quite varied in their focus and intensity—also that there is considerable internal debate within governments and institutions regarding the appropriate balance for determining what to report on and with what degree of analysis and interpretation.

The purpose of Part III is to provide a brief overview of the monitoring and reporting practices and initiatives other countries and jurisdictions are using to look at the state of PSE. The intent is to identify some of the approaches, models, and indicators that Canada could examine to determine potential applicability or usefulness of such practices to the Canadian situation. This section supplements the conclusions reached in Part II by making specific suggestions about the development of a focussed set of benchmarks and, potentially, targets, for Canada.

2. Examples of reporting and monitoring in other jurisdictions

2.1 UNITED STATES

Similar to Canada's provinces, the individual American states have nearly all embarked on more detailed performance reporting in recent years as part of the general trend toward increased accountability. Federal funding often requires such reporting by recipient states and institutions. The U.S. federal government is seen to be directive in the area of education, including post-secondary education.

The U.S. Department of Education administers a budget upwards of \$70 billion a year, and operates programs that affect every area of education. Department programs also provide grant, loan and work-study assistance to approximately 10 million post-secondary students. However, education is primarily a state and local responsibility and the federal budget is only a small part of total national education spending. The U.S. Department of Education provides annual performance reports on its activities and outcomes.

In the U.S., a number of private and non-governmental organizations focus on post-secondary issues and performance. One of the best known of these is *Measuring Up: The National Report Card on Higher Education*, prepared by the National Center for Public Policy and Higher Education. The National Center is an independent, not-for-profit, non-partisan organization, funded by a consortium of national foundations, including The Pew Charitable Trusts and the Ford Foundation. It prepares action-oriented analyses of the pressing policy issues—related to opportunity and achievement in higher education—facing the states and the country. The annual report provides performance results and key findings to the public, civic, business and higher education leaders, as well as state and federal leaders.

Measuring Up 2006 compiles and reports on state-by-state comparisons based on publicly available information "collected by government agencies and by nationally-recognized private organizations [...] charged with responsibilities for data collection" under six performance categories:

- Preparation
- Participation
- Affordability
- Completion
- Benefits
- Learning

The report identifies indicators for each of the six performance areas and highlights promising practices in selected states. It stresses performance strengths and weaknesses, and disparities by ethnicity and socio-economic groups.

Measuring Up 2006 introduced changes to assessment methods. Each state's performance is now assessed three separate ways:

1. Current performance is compared with the best performing states and graded accordingly.
2. Current performance is compared with the state's performance in the 1990s.
3. International comparisons are provided.

The performance measures used in the *Measuring Up* report are weighted in a learning model and then graded against best performers. This appears to be a form of benchmarking, where the performance of individual states is measured and graded against a cluster of top performers.

The Southern Regional Education Board (SREB) is an example of an American intergovernmental agency working on education issues. SREB "works with higher education agencies in the 16 member states to collect and share timely comparative information and higher-education data used extensively by state leaders. State-by-state information on higher education is provided through the SREB-State Data Exchange and biennial *SREB Fact Book on Higher Education*. The *Challenge to Lead* education goals series, includes reports related to goals on college readiness, college affordability and teacher preparation."

The fact book contains data organized by the following themes:

- Population and economy
- Enrolment
- Degrees
- Student tuition and financial aid
- Faculty and administrators
- Revenues and expenditures

In 2006, the Commission on the Future of Higher Education, whose mandate included the development of a national strategy for PSE in the United States, made several recommendations related to the collection of better data nationwide to increase accountability and to measure student performance. These recommendations are under consideration.

2.2 UNITED KINGDOM

The Higher Education Statistics Agency (HESA) issues annual reports of performance indicators in higher education in the U.K. HESA was set up in 1993 following the government white paper *Higher Education: A New Framework*, which called for more coherence in higher education statistics.

HESA's website states that it is the central source for higher education statistics and that it has standardized and streamlined the processes for data collection and publication. The 2006 HESA report, entitled *Performance indicators in higher education in the UK 2004/05*, covers six areas with a series of indicators for each:

- Participation of under-represented groups
- Participation of students in receipt of disability allowances
- Non-continuation rates
- Completion rates
- Research output
- Employment of graduates

The British exercise is not without its critics and HESA strives to clarify the intent and meaning of the indicators it employs. The HESA material defines a performance indicator as "a range of statistical indicators intended to offer an objective measure of how a higher education institution (HEI) is performing. They are **not** 'league tables' and do not attempt to compare all HEIs against a 'gold standard' or against each other [emphasis from original]." The purpose of performance indicators chosen by HESA is to:

- Provide reliable information on the nature and performance of the U.K. higher education sector
- Allow comparison between individual institutions of a similar nature, where appropriate
- Enable institutions to benchmark their own performance
- Inform policy developments
- Contribute to the public accountability of higher education

Benchmarks, defined by HESA as the average values, are not considered particularly useful in the U.K. environment because of significant differences between and among institutions. HESA has calculated a sector average, which is then adjusted for each institution, to take into account some of the factors (subject of study, qualifications on entry, age, etc.) that contribute to the differences between them.

HESA suggests that the benchmarks be used in two ways:

- To see how well an HEI is performing compared to the HE sector as a whole
- To decide whether to compare two institutions

To summarize, the British approach is to use indicators and modified benchmarks based on sector averages, which are adapted to the individual circumstances of the specific institutions.

2.3 AUSTRALIA

Australian reforms in higher education have put in place several reporting and monitoring processes, most of which derive from the centralized nature of the field in the country. An Institutional Assessment Framework governs the funding arrangement between the Commonwealth and the institutions and collects standardized data related to accountability.

The Department of Education, Science and Training (DEST) publishes higher education indicators on such topics as:

- **Students**—numbers, type of enrolment, basis of admission, age, equity groups, postgraduate/total, overseas/total, females by field of study, number of fields of study for undergraduate and graduate students
- **Staff**—numbers, breakdown by function, duties, classification, gender, age, student-staff ratio by academic area
- **Finances**—operating revenues and expenses as share of total income and expenses, salaries and related costs, remuneration, expenses per student under various headings, etc.
- **Research**—income, publications, degree research activity and completions, research income per research student, staff, etc.
- **Outcomes**—progress and attrition rates, graduate employment, salary, satisfaction, teaching and generic skills

The indicators have been evolving over time, with adjustments to DEST methodology in response to measurement problems.

The *Education and Training Indicators* report is published by the Australian Bureau of Statistics. The most recent report from 2002 covered indicators related to financial expenditures, human resources, participation, and a variety of outputs and outcomes.

In Australia, benchmarks are used in the K–12 system (as averages of performance), but they do not appear to be used in higher education. Common data requirements have been defined and are widely used. Indicators are also used in the Australian system.

2.4 ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The Organisation for Economic Co-operation and Development (OECD) publishes *Education at a Glance* annually. This report presents indicators “that represent the consensus of professional thinking on how to measure the current state of education internationally”. Indicators focus on:

- Educational attainment—going beyond graduate counts to examine literacy skills among younger students, gender differences in performance, attitudes and learning strategies, and return on investment
- Spending patterns and trends—access, participation and progression from early childhood through tertiary education and through to transitions from education to work
- Learning conditions—such as amount of instruction time, mostly focussed at the primary and secondary levels

Canada is a member country and participates in the data collection, although in recent years it has not been able to provide the full complement of country data. In the most recent *Education at a Glance*, more than half of the data cells for Canada were missing.

The OECD data and report are built around a series of indicators. However, the OECD mean is usually used for many of the indicators. If one accepts the earlier definition of a benchmark as a system average, then the OECD work presents these indicators as benchmarks. However, they are *passive* because the presentation does not tend to provide an evaluation of performance and the top (or bottom) performers are not highlighted.

2.5 EUROPEAN UNION

The European Union (EU) has established a structured framework and an ongoing process of monitoring and updating that includes all of its member countries. Supported and regularly reviewed by ministers, the Bologna Process involved the articulation of three objectives for education and training in the EU. About 30 indicators (this is not a static number, as a working group constantly reviews and updates the indicators) across nine strategic areas are maintained for all member countries.

In addition to the indicators, five benchmark areas have been identified to achieve numeric targets within the EU by 2010. They include:

- Share of early school leavers
- Ratio of low-achieving 15-year-olds in reading literacy
- Upper-secondary completion rate
- Graduates in math, science and technology
- Adult participation in lifelong learning

The benchmark areas are priorities related to prosperity and social cohesion in the European Union. Special attention is paid in each of these areas to monitoring progress in each of the member countries, with comparisons to the United States and Japan. Regular reporting includes results for Bologna Process countries above and below the benchmark, with emphasis on best practices and sharing of expertise. As stated, the terms benchmarks and targets are interchangeable in the EU context.

The following description provides some additional detail on the approach to monitoring and reporting used in the European Union.

Through its statistical agency Eurostat, the EU published its sixth edition of *Key Data on Education in Europe* in 2005. The report contained 153 indicators, arranged into six subject-based chapters: Context; Structures; Participation; Resources; Educational processes; and Graduates and Qualification levels. Time-series data provided by Eurostat are included wherever possible—in particular, with respect to participation and mobility rates, qualification levels, women graduates in tertiary education, and the number of science and technology graduates. The data provided through Eurydice,¹ a component of Eurostat, are supplemented with quantitative and qualitative input from the Programme for International Student Assessment (PISA) and the Progress in International Reading Literacy Study (PIRLS).

A request for proposals has been issued for the development of further specific indicators focussed on social inclusion and efficiency of education spending. This would help to fill statistical gaps and allow for more comparability with other jurisdictions, such as the U.S., Japan, Russia, China and India. The request for proposals specifies relevant indicators relating to the European education benchmarks:

- Upper-secondary attainment of young people aged 20–24
- Percentage of early school leavers in the population aged 18–24
- Participation in lifelong learning of adults aged 25–64
- Increases in the number of math, science and technology graduates

3. Possible implications for Canada

The stock-taking examples of PSE described above demonstrate that most OECD countries are supporting their PSE expenditures with extensive monitoring and reporting activities that include the development of indicators and/or benchmarks.

Even in countries such as the U.S., where education is highly decentralized, there are regular monitoring exercises that deliver public reports. The agencies providing these functions tend to be independent and non-profit. The OECD, which includes more than 40 countries, has one of the world's most developed and continually evolving systems of monitoring and reporting. All of the surveyed jurisdictions collect data on PSE and have developed indicators to evaluate progress in the sector. All, except Australia, calculate and report benchmarks (system averages) and many have established numerical targets to guide progress in PSE.

In Canada, all provinces and territories collect and maintain information or databases on PSE, usually related to performance measurement, to support their strategic plans for advanced education and training. However, what is collected, how it is collected and reported, and the typology used, differs widely across the country.

The Canadian Education Statistics Council (CESC) is a partnership between the Council of Ministers of Education Canada (CMEC) and Statistics Canada. It provides data and information about education and training in Canada through programs such as the Pan-Canadian Education Indicators Program (PCEIP) and the Pan-Canadian Education Research Agenda (PCERA). The Pan-Canadian Education Indicators Program (PCEIP) provides online statistical measures on education systems in Canada. This program reports data, but does not attempt to evaluate or benchmark performance.

The best-known Canadian exercise that offers regular surveys of PSE and provides rankings of post-secondary institutions is the annual *Maclean's University Rankings*. Since its inception, it has produced a well-read inventory and ranking of post-secondary institutions, based on analysis of several data sources. The degree to which the *Maclean's* assessment is accepted or welcomed by education professionals and officials varies. Generally, objective observers interested in developing meaningful performance indicators, stress that most of the data employed by *Maclean's* are focussed on input variables rather than on output or outcome variables. The implicit

model is that higher inputs are associated with better outputs and outcomes. However, this assumption is not stated and cannot be rigorously established.

CCL's 2006 report on PSE was the first attempt to examine the sector using a pan-Canadian perspective. Focussing on eight goals for PSE derived from common themes identified in provincial and territorial strategic plans for advanced education and training, the report proposed a series of indicators to measure the country's performance and progress in achieving the PSE goals. These indicators were offered as potential starting points for further development of a rigorous monitoring system for PSE in Canada.

A survey of international jurisdictions demonstrates that many countries have established benchmarks and/or targets for PSE to help guide their investment in education and training. Adopting this approach in Canada would supplement ongoing data development and construction of indicators to focus on fundamental areas in PSE that underpin the ability of the country to make progress. Benchmarking, or establishing system averages, would allow individual jurisdictions to determine if their particular circumstances warrant additional attention or priority. For example, if high-school dropout rates were benchmarked across the country, then regions, provinces and territories would be able to measure whether their particular performance was above or below the benchmark and determine if policy or program interventions were appropriate.

It should be noted, however, that significantly different circumstances in system design, management and delivery of PSE across the country may limit the usefulness of benchmarks in Canada. For high-school dropout rates, for example, many provinces may be lower than average. Other jurisdictions may have structural issues that make it difficult or impossible to attain the benchmark. This was the situation in the U.K. where system averages were developed. The averages were found not to be particularly helpful.

The EU model of setting numerical targets in a limited number of key priority areas may be a more viable approach for Canada. To focus policy and program initiatives, it would be logical for Canada to choose PSE targets that are closely related to Canada's economic and social agenda. These targets could supplement any benchmarks that may be established.

4. Possible areas for benchmarks and targets

As a starting point for discussion and based on the analysis of indicators in both the 2006 and 2007 CCL reports, the following areas are suggested as potential candidates for benchmarks and/or targets in Canada.

A brief rationale for the choice of each area is offered. No attempt is made to offer numeric targets at this time. Such information should flow from further research and consultation with experts and policy developers to ensure potential targets are realistic and attainable.

1. Literacy levels

Research shows that literacy levels are a major factor in the well-being of developed nations. The return on investment from literacy has been shown to be about three times more than investment in physical capital over the long term.² Investment in literacy is also a critical component of social cohesion and community well-being. The fact that CMEC has identified literacy as one of three key priority areas also suggests that it is a good candidate for identification of benchmarks and targets. The 2003 International Adult Literacy and Life Skills Survey shows that 9 million Canadians (42%), aged 16 to 65, have low literacy levels.

2. Math, science and technology graduate and undergraduate levels

Math, science and technology graduates directly support the research required in a globally competitive, knowledge-based economy. Canada's ability to produce these technical graduates is not as strong as in many other developed countries.

3. Research and development personnel (per 1,000 population)

Canada trails many other developed countries in the number of research and development (R&D) personnel as a proportion of population. This will affect Canada's potential capacity for innovation.

4. Overall graduation rates

To meet increasing levels of demand for skilled labour-force entrants, Canada needs to increase graduation rates at all post-secondary levels. Graduation rates for males have dropped in Canada over the last decade.

5. PSE attainment rates for population

Canada has one of the world's highest rates of post-secondary educational attainment. However, rates in other countries are growing quickly—some faster than Canada's. If the country is to maintain its leadership position, PSE attainment rates must continue to increase.

6. High-school completion rates

Canadian high-school completion rates have increased, but the dropout rate is still relatively high, especially for rural, Aboriginal and low-income youth.

7. Adult participation in lifelong learning

Approximately 1.5 million Canadians report unmet, job-related adult education and training needs. Lifelong learning is essential in today's knowledge economy, particularly given Canada's aging labour force and literacy rates among working adults.

5. Concluding observations

A review of international experiences highlights the importance of regular monitoring and reporting of performance and progress in PSE in Canada. It also provides the opportunity to focus on key areas of education

by setting benchmarks and targets in a number of priority areas. The seven areas identified above are offered as a starting point for consideration by researchers, policy and program experts across Canada.

PART III ENDNOTES

- 1 Eurydice is an institutional network for gathering, monitoring, processing and circulating reliable and readily comparable information on education systems and policies throughout Europe. It is part of Eurostat.
- 2 Coulombe, S., J.F. Tremblay, and S. Marchand. *Literacy scores, human capital and growth across fourteen OECD countries* (Ottawa: Statistics Canada, 2004) Catalogue No. 89-552-MIE.

Foreword

Strategies for Success opens with an assertion that many of Canada's hopes for future prosperity are pinned on education, especially post-secondary education (PSE) in its broadest sense, including not only public universities and community colleges, but also private institutes, apprenticeships, workplace training and even the informal learning many adults engage in throughout their lives.

Most unitary, federal countries—and even multinational entities such as the European Union—have recognized the important contribution of PSE to their economies and societies, and have moved toward a more integrated and cohesive approach to PSE. These countries have developed national information systems on PSE and national PSE strategies (or in the case of the EU, supranational) to guide their planning and policy-making processes. Canada has taken no such steps. Despite the undoubted past achievements of Canada's PSE sector and the many qualities of our post-secondary institutions and educators, without a more cohesive and coordinated approach, Canada is not only failing to maximize the effectiveness and efficiency of its PSE sector, but also risks falling behind countries that have national frameworks.

THE SITUATION IN OTHER JURISDICTIONS

The contrast between Canadian incoherence and the national outlook of other OECD countries is captured in the following table, which illustrates the difference between Canada and countries that have determined means of moving forward collectively.

Table 4.1.1: **International overview of PSE processes and system-wide structures**

	MAJOR REVIEW IN LAST 5 YRS.	SYSTEM-WIDE GOALS & OBJECTIVES	FUNDING ALIGNED WITH NATIONAL PRIORITIES	QUALITY ASSURANCE AGENCY(IES) IN PLACE	ONGOING MECHANISM FOR FEDERAL/ STATE PLANNING	FEDERAL MINISTRY OF EDUCATION
Australia	Yes	Yes	Yes	Yes	Yes	Yes
EU	Yes	Yes	N/A	Under development	Yes	N/A
Germany	Yes	Yes	Yes	Process under development	Yes	Yes
U.S.	Yes	Under Review	Ltd. federal \$ targeted	Yes	No	Yes
Switzerland	Yes	Yes	*	Yes	Yes	Federal Office of Education
U.K.	Yes	Yes	Yes	Yes	N/A	N/A
New Zealand	Yes	Yes	Yes	Yes	N/A	N/A
Canada	No	No	No	No	No Provinces and territories meet as the Council of Ministers of Education, Canada and the federal/provincial/territorial Forum of Labour Market Ministers meet regularly to share information	No Federal Human Resources Ministry funds labour market programs, research, literacy and other initiatives related to PSE

*Available material not detailed enough to make conclusions at this time.

As this chart demonstrates, many federal systems have established explicit, transparent processes to enunciate specific nationwide goals and objectives, while recognizing the complexity of PSE and the individual roles of the various components within those systems. Almost all of the comparator countries have increased their focus on accountability issues and the need to provide an evidence-based analysis of performance, quality, progress and outcomes of their PSE sectors. In fact, most jurisdictions have put in place quality assurance bodies or agencies to design standards for quality and to conduct ongoing, independent performance audits.

Setting and monitoring national goals and objectives involves the development of measures and/or indicators, as well as regular reporting on performance and progress toward achievement of the national goals. Accountability and benchmarking are not limited to PSE institutions, but encompass an overall assessment of a country's PSE sector, in its entirety, in meeting national targets.

THE SITUATION IN CANADA

Part I of *Strategies for Success* identified a number of ways in which the effectiveness of Canada's PSE sector is undermined by a lack of coordination and cohesion:

- Unlike most developed countries, Canada lacks a national agency of quality assurance in the PSE sector.
- The current linkages between post-secondary institutions and the labour market are insufficient, making it difficult to gauge the adequate labour force supply in some sectors.
- Only 13% of trades have nationally recognized certification, causing barriers to workers' mobility across the country.
- There is at present no clear or comprehensive depiction of the composition of the PSE sector in Canada, despite the emergence of new hybrid degree-granting institutions and the proliferation of private PSIs.
- Canada relies heavily on the R&D functions of its PSIs, but lacks a pan-Canadian mechanism to optimize the relationship between PSIs and the potential users of the knowledge they generate.
- Canada does not have a collective pan-Canadian mechanism to assess PSE requirements against demographic projections, such as the level of student demand versus PSI capacity.

- The field of lifelong learning continues to be a chief weakness in Canada. There are no pan-Canadian mechanisms to improve the sector's response to the needs of non-traditional learners and adult workers; for example, there are no pan-Canadian mechanisms for e-learning, credit transfer and prior learning assessment and recognition, among others.

What, then, is the way forward for Canada? How can we better align our structure with ambitions for PSE in our society?

Clearly, given the rising need for knowledge workers, PSE is more important than ever before. Most developed countries have implemented national strategies and national quality programs to ensure their PSE sectors respond to the demographic, economic and social imperatives of the 21st century. Unless Canada takes similar steps, it risks falling behind. Part IV of *Strategies for Success* is intended to spark a discussion on what should be included in a national framework, and identifies who should be involved in that discussion. We have also provided examples of three areas where a national framework is most urgently needed: quality assurance and accreditation; credit transfer; and prior learning assessment and recognition.

1. Introduction

In its December 2006 report, *Canadian Post-secondary Education: A Positive Record – An Uncertain Future*, the Canadian Council on Learning observed that Canada is at risk of falling behind other countries unless steps are taken to strengthen its PSE sector. The report suggested that one of the key responses to address this risk should be the development of a “national” or “pan-Canadian” approach to PSE in Canada, to complement and broaden the traditional “province-specific” focus derived from provincial legislative jurisdiction over education.

A Positive Record – An Uncertain Future assessed the current strategic plans of provincial and territorial ministries of higher education and/or training, and reasoned that some common goals and objectives for PSE flowed logically from these plans. The report identified eight key goals, analyzed the current data with respect to those goals at the national level, and concluded that the absence of a national PSE focus, agenda or strategy potentially jeopardizes Canada’s future prosperity.

The case for a pan-Canadian approach needs to be made in some detail and with some care. Certainly, some who support the notion that PSE is important to our future may question the conclusion that we need a “national” strategic approach. There is a need for a dialogue as to why, how and who should and can actively advance a common, countrywide approach to post-secondary issues—in addition to the province-focussed approach that will naturally continue as a result of the way PSE is structured in this country.

In Canada, post-secondary education has always been viewed through a provincial lens. Priorities and programs have been developed, for the most part, with this perspective in mind. This is a reflection, and perhaps the logical result, of the fact that the vast expansion of post-secondary education in Canada in the 20th century was firmly founded on the base of the K-12 education systems developed by the provinces. The only exceptions to this general rule were research, student financial assistance and job training—areas with a more national perspective and a clear federal presence. The predominantly provincial focus affects both the substance of PSE policy in Canada and the processes through which post-secondary issues are conceived and pursued.

In terms of substance, the Canadian Council on Learning’s 2006 report noted that a comparison of provincially mandated statements of goals and objectives for post-secondary education reveals striking similarities and common themes across all the provinces. However, unlike most advanced industrialized countries, Canada does not have an explicitly stated, harmonized set of objectives and targets for post-secondary education—for the country as a whole—despite the pivotal role PSE plays in advancing the national interest.

With regard to process, the provincial focus has meant that Canada has never had a formal, structured, federal–provincial–territorial mechanism or forum for discussion of common or mutually interacting issues, goals and priorities. It should be noted, however, that a number of cross-jurisdictional bodies and mechanisms have evolved, designed to bring together actors involved in several aspects of post-secondary education. These are briefly outlined in the next section.

Does the absence of a pan-Canadian focus matter? Canada’s current post-secondary sector is the sum of activities and institutions in 13 individual jurisdictions—actually 14, when the many federal programs and policies that come to bear directly or indirectly on post-secondary education are factored in. Some would consider this multiplicity as a strength, promoting appropriate diversity and specifically tailored responses.

The question to be addressed is whether the “whole”—represented by the combined efforts of the individual jurisdictions, plus the results of the various cross-jurisdictional mechanisms—provides an adequate response to the challenges confronting Canada in a highly aggressive global marketplace and fast-changing world. Or is the status quo less than the sum of its parts, in light of the growing expectations and pressures that now face Canadian PSE? This is the position taken by those who argue that a more coherent, cohesive and comprehensive approach is required.

This chapter examines some of the partners and mechanisms that could be involved in a national framework. The three attachments provide examples of areas that could benefit from a pan-Canadian approach: institutional accreditation; credit transfer, and prior learning assessment and recognition.

2. Where we are now

A wide range of institutions and mechanisms are involved in developing and implementing PSE policy and programming across Canada. Mostly, these exist at provincial and territorial level. In addition, there are several intra- and inter-jurisdictional organizations and mechanisms, both governmental and non-governmental. A listing of most of these is set out below.

Provincial jurisdiction and programming

- Provincial legislation and regulation
- Public and private post-secondary institutions
- Intra-provincial mechanisms, e.g. Council of Ontario Universities (COU), The University Presidents' Council (TUPC, BC), *Conférence des recteurs et des principaux des universités du Québec* (CREPUQ), etc.
- Provincial funding—totalling around \$21.5 billion in 2005–2006, or 72% of total public PSE funding

Federal jurisdiction and programming

- Major transfer payments (Canada Social Transfers)
- Tax credits and transfers
- Student financial assistance programs and tax expenditures
- Research spending (granting councils)
- Science and innovation, commercialization, intellectual property
- Labour-market and training policies and programs
- Immigration policy
- Aboriginal policy and programming
- Foreign affairs and international trade development and promotion
- Regional development programs
- Statistics (Statistics Canada)
- Total federal funding allocated for PSE was \$8.4 billion in 2007–2008, or about 28% of total public PSE funding

Cross-jurisdictional mechanisms

- National—governmental:
 - Council of the Federation (COF)
 - Council of Ministers of Education, Canada (CMEC)
 - Forum of Labour Market Ministers (FLMM)
 - Federal, provincial and territorial ministers of finance
 - Federal, provincial and territorial ministers responsible for science and innovation

- Federal, provincial and territorial ministers responsible for internal trade
- Federal, provincial and territorial sectoral ministerial councils
- Canadian Education Statistics Council (CESC)
- National—Non-governmental organizations:
 - Association of Universities and Colleges of Canada (AUCC)
 - Association of Canadian Community Colleges (ACCC)
 - Canada Millennium Scholarship Foundation (CMSF)
 - Sector councils
- Regional—Non-governmental organizations:
 - Maritime Provinces Higher Education Council
 - Association of Atlantic Universities (AAU)
 - Council of Western Canadian University Presidents (COWCUP)

Consistent with their mandates, individual governments are continually active in developing and implementing policy and program initiatives related to their jurisdiction in PSE. Provincial reviews and strategies have been developed in most provinces in recent months and years: in Ontario through the *Ontario: A Leader in Learning*¹ report, in British Columbia through *Campus 2020*,² and in New Brunswick through the *Advantage New Brunswick* report, to name but three examples.

The federal government has announced its intention to change its programming with respect to its role in PSE. Budget 2007 announced a number of funding and program changes, along with a proposal to work with provinces and territories “to identify priority areas for investment and ... to strengthen accountability by ensuring reporting on results and opportunities.”

Several cross-jurisdictional mechanisms identified above have developed initiatives where there is a common interest, or on issues where there is a desire to share information regarding best practices.

The Council of the Federation, for example, sponsored a major symposium involving PSE stakeholders in February 2006 and issued a statement of policy priorities in July 2006. The statement, entitled *Competing for Tomorrow: A Strategy for Postsecondary Education and Skills Training in Canada*, identified five priority areas: improved access, enhanced quality, increased participation in the labour force, development of workplace skills, and expanded research and innovation. The document outlined a number of potential strategies that could be employed by individual provinces and territories to achieve the five priorities.

The Council of Ministers of Education, Canada (CMEC), consisting of provincial and territorial ministers of education, has been meeting for more than 40 years. It issued a statement of public post-secondary education expectations in 1999. It has since followed up with work on Aboriginal education, PSE capacity and literacy. In addition, ministers agreed in 1995 to a protocol on the recognition of PSE credits and on a framework on qualifications, setting out a common lexicon to define various credentials at the degree level. CMEC meets once or twice a year to share information and experience on education issues of common interest to the provinces and territories.

CMEC and Statistics Canada, together, form the Canadian Education Statistics Council. Among other things, the Council identifies priorities for research in the area of education, including post-secondary education. It also prepares a series of compendia of educational statistics entitled Pan-Canadian Education Indicators Project.

2.1 DISCUSSION

The mechanisms and developments outlined at the beginning of Section 2 of Part IV provide evidence of the importance attached to PSE in Canada. Significant actions have been initiated in the individual jurisdictions involved and through some of the cross-jurisdictional work referred to above.

Although CMEC is composed exclusively of provincial and territorial representatives, and, in the view of some, was “designed explicitly to resist further federal incursions into provincial jurisdiction,”³ there is some involvement of federal government representatives in certain specific project-related activities and committees. These include student financial assistance, adult literacy and Canada’s foreign policy as it affects education issues. Involvement of federal representatives is, however, very limited, taking place only case by case.

There is no formal agency that carries responsibility for education-related activities at the federal level in Canada, which is unique among OECD countries similar to Canada. Nor is there a structured mechanism for federal–provincial–territorial interaction on a regular basis on the full range of PSE issues—much less for the establishment of commonly agreed-upon priorities, goals and objectives.

While there is no federal presence on CMEC, the federal government does have an effect on PSE by sitting on a small number of joint federal–provincial–territorial councils and committees in other domains.

A federal–provincial–territorial body—the Forum of Labour Market Ministers (FLMM)—deals with labour-market issues, which include a number of questions involving or impacting PSE, such as training. The fact that provincial or territorial representation on FLMM is often, but not always, from the same ministry responsible for PSE in the province or

territory, and that there is considerable overlap on issues related to training and PSE, has led in the past to occasional attempts to coordinate agendas and meetings between CMEC and FLMM.

The federal role in research is substantial. The issue of research is also of central importance to PSE policy and programming from the perspective of provinces and territories. But, while HRSDC is the federal department most involved with federal policy and programming related to PSE, it is Industry Canada that carries responsibility for federal policy and funding in research, including the major granting councils. Industry Canada is, therefore, the federal representative (and co-chair) of the federal–provincial relations mechanism that discusses science and innovation policies, including research. From the provincial side, representation usually comes from ministries responsible for research or economic development, often not the same departments responsible for PSE.

The granting councils (NSERC,⁴ SSHRC,⁵ CFI,⁶ as well as the health-research focussed CIHR⁷) coordinate their efforts at the federal level. They also have close linkages with provinces and territories as well as with individual post-secondary institutions and their representative organizations, such as the Association of Universities and Colleges of Canada (AUCC).

AUCC, a non-governmental organization, has had a significant impact over the past decade influencing the federal agenda with respect to PSE funding, especially research funding. AUCC also acts as the *de facto* mechanism for accreditation of degree-granting institutions in Canada at the national level, in the absence of any other formally mandated mechanism beyond the borders of the individual provincial governments.

The Canada Millennium Scholarship Foundation (CMSF) is technically a not-for-profit organization, although it was founded through federal action and funding. Its funding is scheduled to expire in 2010. After initial negative reaction by provinces and territories to its creation by Ottawa, CMSF succeeded in forging productive relationships with the individual provinces and territories, particularly with regard to meshing CMSF funding with other federal and provincial needs-based student financial assistance.

Some may argue that these efforts constitute the kind of pan-Canadian framework required to meet the challenges of the 21st century. They may believe that a more integrated pan-Canadian perspective is not only unnecessary, but also undesirable—that it might further muddy the jurisdictional waters, suppress creativity and innovation, and separate responsibility from accountability.

Those in favour of a pan-Canadian framework would respond that the mechanisms outlined above are insufficient and incoherent. They believe that despite the growing pan-Canadian and international scope of PSE

resulting from increasing mobility of people and ideas, the perspective arising from the jurisdictional focus does not respond to the needs of a global society and economy.

There is no denying that Canada has not only survived, but excelled in the past despite the lack of a formal pan-Canadian strategic approach to PSE. Yet, it is by no means certain that Canada can maintain its position as a global leader in education under the status quo. Other countries are now investing more heavily in education than Canada; the OECD reported that 13 countries had higher indices of change in expenditures than did Canada between 1995 and 2003. Many countries have also developed national strategies for higher education, including clearly articulated goals, targets and benchmarks for the sector. Aside from international considerations, a case can be made that PSE must be strengthened within Canada simply to meet domestic economic needs and demographic pressures, as well as to address socio-economic disparities between those who do and do not have an advanced education in a knowledge economy. It is argued that if Canada cannot maintain its leadership position there is a very real danger the country's economic performance and social progress will suffer.

The key question is whether Canada's future success can be ensured through the independent actions of individual jurisdictions, or whether there are some challenges that can be effectively addressed only by supplementing province-specific initiatives with inter-jurisdictional, pan-Canadian initiatives.

These differences in perspective provide a backdrop to the following discussion of possible approaches to a pan-Canadian framework for PSE. The arguments made against such an approach must first be addressed, and specific ideas advanced on how such an agenda might practically be developed and implemented.

In this context, it seems useful to frame the discussion about a pan-Canadian approach by setting out three related, but distinct, issues:

- Why a pan-Canadian framework is needed and useful
- What might constitute the components or characteristics of a pan-Canadian framework
- How—and by whom—those components or characteristics could be defined and implemented.

The following section examines these issues in greater detail.

3. Why a pan-Canadian framework is needed and useful

For those who conclude a pan-Canadian approach is needed to complement the traditional, province-focussed approach to PSE, the argument hinges on a number of trends, factors and phenomena—all marked by the fact that they reflect the widespread externalities, or spillover effects, that characterize post-secondary education.

There is general acceptance that PSE in the 21st century has come to play a central role in the following: generating the human capital and innovation now considered critical to national economic growth, productivity and prosperity; providing the potential to enhance equity and cohesion. These are matters of national importance and national interest.⁸ Many countries around the globe have developed detailed strategies to strengthen education—post-secondary education in particular—in response to education's much-enhanced role in the modern world. They are sharpening and deepening their educational efforts to support their economic and social agendas.

The key question is whether Canada faces specific circumstances and challenges that dictate a need for change from the traditional, province-by-province approach. These challenges flow from changes to the Canadian labour market and economy due to globalization, and from changes to Canadian society and culture because it is more urban-based and diverse. Those who argue in fa-

our of a more pan-Canadian or national approach focus on two main themes:

- the opportunity to add value to the programs and policies of the individual provincial and territorial jurisdictions
- the need to address challenges that cannot practically or effectively be dealt with solely on a province-by-province level

The following six opportunities and challenges are often raised in any discussion about the possibility of common or joint action in the post-secondary field.

3.1 PORTABILITY, QUALITY, ACCREDITATION

The AUCC has served as an effective, if unofficial, accrediting agency to supplement the role of provinces, which are responsible for formal recognition of degrees and institutional mandates. But with the increasing need for national and international portability, and credibility of credentials and institutional quality, some observers have identified the need for a more formal mechanism for institutional accreditation. They have argued that it is inappropriate and unfair to lay this burden on a voluntary organization such as the AUCC, which was not designed, mandated, or resourced to fulfil such a function.

3.2 MOBILITY

The current, inward-looking provincial perspective on PSE limits the extent to which programming recognizes the need for learner mobility. This narrow perspective poses specific obstacles for individual learners who wish to move from institution to institution. It also imposes costs. These include a lack of efficiency in the use of expensive infrastructure, a reduction in the scope and range of opportunities available to learners, and missed opportunities for Canadians to discover other parts of the country.

3.3 EFFICIENCY AND ECONOMIES OF SCALE

The quest for excellence on a global scale requires concentration of scarce resources. This entails coordination and collaboration among institutions and academics, and smart investment decisions.

The changing distribution of populations and the high cost of infrastructure are other realities that support coordination of planning and delivery of PSE programming on a larger scale. This kind of planning allows for rationalization of scarce resources and the most economical and effective use of those resources to benefit learners and communities.

For example, news stories point to the current enrolment crunch in Ontario, where demand is exceeding the supply of student spaces. Meanwhile, there is excess capacity in other parts of the country. In fact, demographic projections by Statistics Canada for the Canadian Council on Learning indicate that enrolment will peak in Canada over the next few years, then start to decline. In the Atlantic provinces and Saskatchewan, peak enrolments have likely already been achieved and declines are expected to occur steadily over the next 25 years. Provinces and territories would do well to work together to make the most effective and efficient use of costly capital infrastructure. They would also do well to collaborate on the issue of recognizing and accepting credits and credentials earned out of province.

3.4 EFFECTIVENESS AND ACCOUNTABILITY

For reasons of accountability, and to inform continuous improvement, each jurisdiction and each institution concerns itself with assessing its effectiveness. As CCL's 2006 report on PSE pointed out, to date there has not been much activity to supplement these micro-level assessments with a more crosscutting or macro assessment that examines the effectiveness of Canadian PSE in an internationally comparative context. This lack of evaluation isolates Canada in the community of nations. Canada's inability to track performance and make improvements from the pan-Canadian perspective puts the country at a competitive disadvantage among OECD countries.

3.5 MUTUALLY INTERACTIVE IMPACTS, BUT NO MUTUAL PLANNING OR COORDINATION

The provinces have been served for 40 years by the Council of Ministers of Education, Canada, which has focussed principally on exchanging information rather than on developing cross-provincial planning or programming. While the federal government has been active in key areas that affect post-secondary education for as many decades (in some cases, even longer—transfer payments, research granting councils, student financial assistance, funding of training programs, immigration, Aboriginal education, to name a few cases) there is no forum for structured discussion between the federal and provincial governments. Federal-government decisions about research or tax policy may have an impact on the provision of post-secondary education in the provinces, and vice versa. While the mutually interactive effects of the dimensions of PSE are complex, the lack of a regular forum has meant those impacts occur by happenstance, rather than as a result of common objectives or priorities.

The fact that research-related issues are dealt with in fora separate from PSE-related issues highlights differences in administrative approaches within governments. It also underlines—at the intergovernmental level—the lack of a structured forum for discussion of the whole range of PSE issues. In some domains—environment and health, for example—there are various federal-provincial-territorial tables that allow and promote dialogue, but in the PSE area, no formal mechanism has evolved.

Whatever the explanation, the fact remains that Canada lacks explicit national goals and benchmarks for PSE that are related to the country's social and economic interests. As a result, there is a paucity of measures against which to assess Canada's progress as a country in post-secondary education.

3.6 OTHER JURISDICTIONS ARE MOVING FAST

In the 20th century, few countries had coherent national strategies for post-secondary education, so Canada was not alone. This is no longer the case. In recent decades, Canada's major competitors have developed aggressive, comprehensive national strategies for PSE to advance their national interests, especially in terms of innovation, productivity and economic growth.

Indeed, the creation of learning and knowledge societies has become a global preoccupation in the 21st century. Several countries have significantly increased their emphasis on higher education. Many have undertaken reviews to determine how their education and training systems are performing in comparison with other jurisdictions and whether they are meeting national objectives. Based on these reviews, some countries have launched major reforms to ensure their education systems are responsive to national needs and global realities.

In all jurisdictions, there is a definite push to introduce performance measures and accountability. Such measurement is related not only to accountability for institutions, but also to countries' performance. For instance, the EU progressed from a collection of six common market states, whose borders could take hours to cross, to an increasingly integrated entity, which has developed a shared European strategy for higher education, including common benchmarks for PSE and skills development.

The evolution of circumstances affecting PSE in recent decades has resulted in many issues that now cross over provincial and territorial boundaries. This new reality points to the need for a pan-Canadian dialogue on PSE. Such a dialogue is necessary if Canadians want to ensure that their PSE sector can best respond to evolving social and economic needs, and best serve the interests of learners.

Such a dialogue will require an agenda of substantive issues (the what) and process issues (the how and who).

4. What might constitute the components or characteristics of a pan-Canadian framework?

The previous discussion of the question "Why a pan-Canadian approach to PSE?" focussed on issues and challenges that, by their nature, call for pan-Canadian solutions. Such an approach would aim to enhance the efficiency and effectiveness of existing efforts at the provincial and territorial level. This would support the various commonly held—but independently pursued—social and economic goals and objectives concerning access, quality, affordability, sustainability, research and innovation, and accountability.

There are considerable advantages to the traditional, decentralized, provincially focussed approach to PSE; a pan-Canadian approach would be designed to complement and build on, rather than replace, the traditional approach. A pan-Canadian approach in specific areas would help create the conditions for continued strong outcomes and performance in post-secondary education, recognizing the increased importance of PSE for Canadian—and global—social and economic progress.

It must also be recognized that there are some areas in which a more pan-Canadian perspective has worked. In the field of student financial assistance, federal, provincial and territorial governments have long worked together to integrate their policies and programs. Within the context of the CMEC, a federal-provincial-territorial table—the Intergovernmental Coordinating Committee on Student Financial Assistance—brings together officials responsible for programs at both levels of government. Despite these efforts, there have been recurring calls for a more integrated and systematic review of the panoply of student financial-assistance programs. There have also been calls for their reform, simplification and harmonization—to combat confusion, to respond to changed student profiles and needs, and to promote policy goals regarding equitable access and affordability.

Federal, provincial and territorial ministers responsible for science and technology meet regularly to discuss R&D policy and program issues. As noted in the Canadian Council on Learning's 2006 report on PSE, R&D in Canada is heavily concentrated in the PSE sector. It must also be noted that in many jurisdictions, the ministers responsible for science and technology—and therefore R&D—are not necessarily the same ministers with responsibility for PSE.

Going beyond these two important areas, and within a context of recognizing provincial priorities and circumstances, a pan-Canadian framework would also add value to the province-focussed efforts in PSE.

The following section highlights the areas that would benefit from pan-Canadian consideration.

A. REGULAR DISCUSSION OF COMMON AND MUTUALLY INTERACTIVE POLICIES AND PROGRAMS AMONG ALL THE KEY PLAYERS IN PSE, AND IDENTIFICATION AND ARTICULATION OF COMMONLY AGREED-UPON OBJECTIVES AND PRIORITIES, IN THE AREAS OF PSE AND TRAINING, FROM A NATIONAL OR PAN-CANADIAN PERSPECTIVE

Current situation in Canada

The decentralized approach to PSE in Canada has resulted in limited consultation and limited joint action in the area of advanced education and training. Over the years, the degree of interaction between the two levels of government has varied based on intergovernmental issues or political circumstances—sometimes a source of friction.

The federal government may deserve provincial criticism for unilateralism in launching initiatives that affect

provinces without involving them in the decisions. The federal government considers its actions a policy and program response to national circumstances and priorities. It may also offer the rebuttal that unilateralism flows, in part, from provinces refusal to involve the federal government in formal discussions of common goals and objectives, and from the lack of a mechanism for better coordination of PSE activities and policies.

There is a striking degree of commonality in the strategic plans of the provinces and territories for advanced education and training. In 1999, the Council of Ministers of Education, Canada issued a statement of public expectations regarding PSE. Following a review of the council's mandate in 2002, CMEC went on to identify three priorities shared by provinces and territories: Aboriginal education, literacy and PSE capacity.⁹

The Council of the Federation's document of August 2006, which was published following extensive consultations with stakeholders and partners, identifies priority areas that are entirely consistent with the expectations document published by CMEC seven years earlier. It is also consistent with priority areas identified by past federal governments when they discussed topics of innovation, learning or human-resource development. However, the COF paper repeatedly argues that while there may be common priorities that transcend provincial boundaries, policies and programs will need a continued province-specific approach rather than a common, pan-Canadian approach.

Situation in other jurisdictions

A review of other countries with federal systems similar to Canada's, or that have close relationships with Canada, reveals some common trends:

- Almost all PSE sectors—and the post-secondary institutions that operate within them—are increasing their focus on accountability issues and the need to provide an evidence-based analysis of performance, quality, progress and outcomes.
- Many federal systems have established explicit, transparent processes to enunciate specific, nationwide goals and objectives, while recognizing the complexity of PSE and the individual roles of the various components within those systems.
- Most jurisdictions have put in place quality-assurance bodies or agencies to design standards for quality and conduct ongoing, independent performance audits.
- Setting and monitoring national goals and objectives often involves the development of measures and indicators, as well as regular reporting on performance and progress toward achievement of national goals.
- Accountability and benchmarking are not limited to PSE institutions, but encompass an overall assessment of a country's PSE sector, in its entirety, in meeting national targets.

Table 4.4.1: **International overview of PSE processes and system-wide structures**

	MAJOR REVIEW IN LAST 5 YRS.	SYSTEM-WIDE GOALS & OBJECTIVES	FUNDING ALIGNED WITH NATIONAL PRIORITIES	QUALITY-ASSURANCE AGENCY(IES) IN PLACE	ONGOING MECHANISM FOR FEDERAL/ STATE PLANNING	FEDERAL MINISTRY OF EDUCATION
Australia	Yes	Yes	Yes	Yes	Yes	Yes
EU	Yes	Yes	N/A	Under development	Yes	N/A
Germany	Yes	Yes	Yes	Process under development	Yes	Yes
U.S.	Yes	Under Review	Limited federal \$ targeted	Yes	No	Yes
Switzerland	Yes	Yes	*	Yes	Yes	Federal Office of Education
U.K.	Yes	Yes	Yes	Yes	N/A	N/A
N.Z.	Yes	Yes	Yes	Yes	N/A	N/A
Canada	No	No	No	No	No Provinces/ territories meet as the Council of Ministers of Education, Canada and the federal-provincial-territorial Forum of Labour Market Ministers meet regularly to share information	No Federal human resources ministry funds labour-market programs, research, literacy and other initiatives related to PSE

*Available material not detailed enough to make conclusions at this time.

B. ADDRESS THE ISSUE OF QUALITY ASSURANCE FOR PSE IN CANADA THROUGH ESTABLISHMENT OF A PAN-CANADIAN APPROACH TO ACCREDITATION

Current situation in Canada

Educational institutions are authorized under statutes of individual provinces and territories. In recent years, two trends have become obvious: the emergence of a number of post-secondary institutions that do not fit the traditional classifications of PSIs; and the growth of private-sector institutions, including private-sector degree-granting institutions. This has resulted in questions about the adequacy of current systems for credential recognition and quality assurance.

It is necessary to distinguish between quality assurance/assessment at the program level and at the institutional level. In Manitoba, Saskatchewan, Ontario and Quebec, external program assurance is effectively done by the institutions themselves, acting collectively through a body like the Council of Ontario Universities, which sets up procedures that in effect hold internal self-study audits to certain standards. In the Maritime provinces, a similar process exists, the only difference being that the oversight body is government-created (the Maritime Provinces Higher Education Council) rather than controlled by the institutions themselves. In Alberta and British Columbia, in contrast, government-controlled bodies do quality assessment of programs, but are restricted to examining new degree programs, as existing ones are exempt. In British Columbia, older institutions are exempted altogether from external oversight, including the University of British Columbia.

A different procedure exists, however, for programs in fields of study where professional bodies hold sway. Hence, for engineering, medicine, law, dentistry, etc., experts from within the profession periodically conduct reviews to ensure the quality of programs.

Regardless of the form of external review, all such reviews at the program level are designed simply for quality-assurance purposes—that is, to ensure that minimum standards are met. No attempt is made to measure or assess quality at the program level beyond this.

The situation is different at the institutional level. Only three provincial governments make any attempt at systematic evaluation at the institutional level: British Columbia, Alberta and Ontario. In all three cases, it is the ministries of advanced education themselves that make the quality assessments.

With regard to institutional recognition, the AUCC has served as an unofficial accrediting agency, with membership in the organization offering an overall seal of approval in post-secondary education in Canada. The

proliferation in recent years of both private and public post-secondary degree-granting educational institutions has resulted in some confusion, with some institutions inside the AUCC membership and others outside. No formal mechanism for institutional accreditation at the national level in Canada currently exists.

The Council of Ministers of Education, Canada, is doing some work in the area of quality assurance. The council endorsed a statement on three elements of quality assurance in April 2007, covering: a degree-qualifications framework; procedures and standards for new degree-program quality assessment; and procedures and standards for assessing new degree-granting institutions.

It is of interest to note that the April 2007 report *Campus 2020* in British Columbia specifically recommended that work be undertaken to develop a provincial accreditation process and system for all public and private degree-granting institutions. Most notably, it recommended that the British Columbia project be supplemented through discussions with other provinces “to develop an inter-provincial accreditation system with the goal of establishing an internationally recognized system of accreditation by 2012.”¹⁰

Situation in other jurisdictions

United States

Accreditation in the U.S. is a process of external quality review conducted by private, not-for-profit organizations created for this purpose. Like the American educational system, the accreditation process is decentralized with approximately 80 recognized institutional and program-accrediting agencies operating in the U.S. Recognition of the accrediting agencies is carried out by the Council for Higher Education Accreditation or the United States Department of Education.

Australia

The Australian Universities Quality Agency is an independent, not-for-profit agency established by the Ministerial Council on Education, Training and Youth Affairs to conduct quality auditing and public reporting for all public post-secondary institutions. In addition to quality audits, the agency provides public reports on audit outcomes, comments on the criteria for recognition of new universities and other awards, and reports on the relative standards and international standings of the Australian system.

United Kingdom

The Quality Assurance Agency for Higher Education was established in 1997 to coordinate and integrate quality assurance for higher education. Its mandate is to encourage continuous improvement and standards for higher education. The agency conducts and publishes quality reviews against defined standards.

European Union

Through the Bologna process, the European Ministers of Education committed to cooperation in quality assurance for higher education by developing comparable criteria and methodologies for a European quality-assurance framework to be in place by 2010. The European Network for Quality Assurance was established in 1999 to encourage the further introduction of quality-assurance methods and to promote European cooperation.

Attachment 1 (see page 168) provides more detailed information on the issues and possible approaches to quality assurance and accreditation, as developed by some of the key stakeholders within the PSE sector.

C. PROMOTE MOBILITY OF STUDENTS ACROSS THE COUNTRY, THROUGH SUCH MEANS AS ENHANCED CREDIT TRANSFER AND CREDENTIAL RECOGNITION

Current Situation in Canada

Student mobility in Canada is difficult to assess because of a lack of data. This is true of mobility inside the country and of international movement. The AUCC and Statistics Canada collect some data on internal mobility, but this is a challenge due to lack of common definitions, incomplete coverage and data-collection problems.

More knowledge with regard to student mobility would be useful to determine if there are significant barriers to mobility, especially academic barriers, that could be addressed. A focus on mobility could help address general issues of access. Increased mobility could also help individuals gain an appreciation for other parts of Canada and build a sense of citizenship. It is widely accepted that students studying in multiple academic settings benefit from the diversity their studies offer. Similarly, educational institutions benefit from the contribution that these students make to the learning environment. Barriers to mobility may

range from individual situations to structural barriers related to an inability to transfer academic credits. The failure to provide formal recognition for academic studies can result in inefficiency, increased costs and inhibited mobility.

The situation in Canada with regard to credit transfer varies significantly from province to province. Some provinces, notably Alberta and British Columbia, have developed comprehensive systems of credit transfer for students. Ontario has a series of individual credit-transfer agreements between the various sectors and the Council of Ontario Universities and the College-University Consortium Council work to facilitate credit-transfer processes. Most other provinces have a credit-transfer system that rests on a series of complex and multiple agreements summarized below. The description of a credit-transfer system as a kind of floating currency (see Attachment 2 on page 172) denotes a situation where credits external to an institution are assessed individually. A fixed system is one where credit values are agreed upon and confirmed in agreements.

Table 4.4.2: Canadian post-secondary education credit-transfer overview

JURISDICTION	TRANSFER GUIDES	TRANSFER COUNCIL	CREDIT EXCHANGE RATES		
			FLOATING	FIXED	CURRENCY UNION
British Columbia	X	X		X	
Alberta	X	X		X	
Saskatchewan	X	X	X		
Manitoba			X		
Ontario	X		X	X ¹¹	
Quebec			X		
New Brunswick	X		X		
Nova Scotia			X		
Prince Edward Island			X	X ¹²	
Newfoundland and Labrador	X		X		

In 1995, the Council of Ministers of Education, Canada signed a Protocol on Credit Transfer that covered the transfer of first- and second-year university credits among nearly all Canadian post-secondary institutions. CMEC set up a working group on credit transfer in 2002, and issued a Ministerial Statement on Credit Transfer in Canada that October. In October 2005, CMEC issued a report on subsequent progress.¹³

The report notes that:

In October 2002, CMEC approved a strategy to improve credit transfer across Canada. Given the substantial differences in credit-transfer systems and post-secondary structures among provinces and territories, it was agreed that a pan-Canadian system of credit transfer should be built up over time, through an initial focus on developing and enhancing strong provincial/territorial transfer systems. Each province/territory committed to reviewing its current transfer arrangements and to developing a framework for action to enhance its credit-transfer system according to its own priorities over the period 2002 and 2005.

The report goes on to note that progress had been made over the previous three years, and that “all jurisdictions have indicated their work will continue on the credit-transfer issue within their own priorities, resources, and structures over the next several years.”

Since then, the B.C. and Alberta agencies responsible for credit transfer agreed to co-chair a new organization, the Pan-Canadian Consortium on Admissions and Transfers, whose inaugural meeting was held in June 2006, with a follow-up meeting in Charlottetown in June 2007. The purpose of the Consortium is “to facilitate the implementation of policies and practices and support student mobility within and among provinces and territories and granting of transfer credit in order to improve access to post-secondary education in Canada.”

Situations in other international jurisdictions

Australia

In 1995, Australia agreed to a national framework providing guidelines for individual agreements on credit transfer between the vocational and higher-education systems, leaving the situation to individual institutions. In 2007, a group of the top eight universities signed a credit-transfer agreement permitting full transfer among the eight institutions.

United States

With the decentralized system in the U.S., there is a proliferation of credit transfer arrangements, most states having developed transfer agreements. More than half the states have legislation requiring the development of transfer agreements between colleges and four-year institutions. Some states have moved to develop common core curricula or financial incentives for transfers.

United Kingdom

Scotland and Wales have moved to nearly full credit transferability, while England relies on regional articulation agreements that are not national in scope.

European Union

The European Credit Transfer System was created to facilitate student mobility under the Erasmus Program, which promotes single years of study outside the country.

There is now a new initiative underway involving approximately 100 universities that are attempting to align their competencies and curricula to facilitate portability.

Attachment 2 (see page 172) contains additional details on credit-transfer systems.

Attachment 3 (see page 177) outlines PLAR activities in Canada over the past two decades. It notes differences within the PSE sector, particularly between universities and colleges, in developing PLAR programs and services. This section describes the systemic barriers that prevent many working-age adults from realizing the full benefits of the skills and knowledge they have acquired over their lives.

In summary, there has been recognition of the need for inter-jurisdictional activities with respect to certain aspects of PSE in Canada. Work on student financial assistance is one such example.

Part II of this report reflects on current initiatives being pursued with respect to educational data and offers a detailed strategy to develop measures and metrics for assessing performance and progress of PSE in Canada. However, although a pan-Canadian data strategy is a key building block, it alone will not achieve the required outcomes—there is a need for a pan-Canadian framework for PSE with clearly stated goals and objectives.

Canada should build on existing mechanisms and expand the intensity and priority attached to an inter-jurisdictional focus in three specific areas—areas in which a pan-Canadian PSE framework would add value to existing initiatives:

1. Regular discussion of common and mutually interactive policies and programs among all the key players in PSE, and identification and articulation of **commonly agreed-upon goals, objectives and priorities** in the areas of post-secondary education and training, from a national or pan-Canadian perspective
2. A process of quality review to address the issue of **quality assurance** for PSE in Canada through the establishment of a pan-Canadian approach to accreditation
3. Enhanced effort to promote **mobility** of students across the country, through such means as enhanced credit transfer and credential recognition

5. How—and by whom—could components or characteristics of a framework be defined and implemented?

The question of how to develop and implement an approach, strategy or framework raises questions of mechanisms or processes through which the substantive issues—the whats—can be pursued.

At a very high level of generality, there are two different, but complementary, approaches to building such a pan-Canadian framework.

The two types of approaches identified in the chart below represent two ends of a spectrum, with many options in between. The approaches are not mutually exclusive. For example, the intergovernmental management (IGM) approach flows from direction received as a result of high-level political agreements reached through the more familiar and traditional intergovernmental relations (IGR).¹⁴

Table 4.5.1: **Comparison of IGR and IGM**

TRADITIONAL IGR	ALTERNATIVE IGM
Government-led	PSE-led
Top down	Bottom up
Comprehensive	Incremental
Strategic	Tactical
Integrative focus	Implementation focus
Wide-angle lens	Close up lens
Principle-driven	Pragmatic
Policy guiding	Problem solving

The use of IGM-type bodies, which in many ways bridge the gap between government on the one hand, and the PSE/PSI professionals on the other, is widespread in other jurisdictions. Such approaches take many forms and serve many purposes.

In the U.S., state-wide commissions with membership representing various interests—government, PSE and beyond—operate in areas such as strategic planning, resource allocation and accountability. *Campus 2020* recommended that such a body be set up in British Columbia—in the form of the Higher Education Board, for example.

5.1 TRADITIONAL IGR

Examples of the familiar model of intergovernmental relations have been common in many fields of public policy in Canada, but mostly in areas other than PSE. Typical examples would be First Ministers' meetings and agreements on such topics as health care and early childhood development.¹⁵

With respect to PSE in Canada, the most effective means to bring together the various interconnected strands identified in Part IV Section 4¹⁶ would require a "traditional IGR" initiative through the creation of a multi-stakeholder, multi-jurisdictional forum. Such a forum would involve federal, provincial and territorial governments, supplemented and informed either by participation of, or input and advice from, key actors such as the AUCC, ACCC and others.

Having a forum, or set of fora, would provide a place for all those involved in the key decisions affecting PSE to bring their particular perspectives to the table and attempt to craft a framework to identify key goals, objectives, priorities and metrics. It is only through such an approach that comprehensive, coherent and legitimate consensus can be forged on the range of issues that form the PSE agenda. And it is only through such consensus that the effectiveness, efficiency, equity, quality and relevance of the disparate efforts of governments and institutions can be maximized in the service of pan-Canadian social and economic objectives.

The priorities identified through such a traditional IGR exercise would be assigned to relevant mechanisms that would pursue IGM approaches to identifying problems, options and specific recommendations for action. The oversight forum created as part of a traditional IGR approach would assess progress and adjust national framework components accordingly. Information relevant to such oversight would be generated through realization of the PSE data strategy outlined in Part II of this report.

The advantages to such an approach flow from its ability to provide a comprehensive and coherent set of guiding principles and priorities, bringing together the disparate components that constitute the PSE endeavour in Canada.

IGR would add value to the policy and program priorities set out by each of the provinces and territories. It would do this by adding a necessary and integrative cross-Canada perspective to issues important to not only provincial, but also national prosperity and social and economic progress.

In the context of Canadian federalism, it would constitute a *both-and*, not an *either-or*, response since provinces and territories would clearly remain responsible for implementation of specific funding, legislative and regulatory measures as a result of their constitutional jurisdiction in the field. Examples that might inform such an exercise are found in other federal states much like Canada and in the European Union.

In this context, the lack of a regular, formal federal–provincial–territorial forum to focus the PSE efforts of governments is a serious obstacle. CMEC provides such a vehicle for the provinces and territories, and the good work it has initiated provides a solid base for future progress. But the significant role and impact of federal policies and expenditures would be made more effective if both levels of government could collaborate on perspectives and common approaches.

A positive recent example in the area of PSE is the release in July 2006 of the Council of the Federation document entitled *Competing for Tomorrow: A Strategy for Postsecondary Education and Skills Training in Canada*. As previously noted, this represented the views of the provinces and territories, and did not involve the federal government—despite the fact that nearly one-quarter of public funding for Canadian PSE is provided federally and that federal actions in many areas have direct and indirect bearings on PSE.

Budget 2007 reiterates the federal government’s desire to engage in a discussion with the provinces and territories with respect to PSE generally, as well as with respect to more specific areas of skills training and student financial assistance.¹⁷

It seems clear that the development of a pan-Canadian set of goals, objectives and priorities, and a comprehensive, consistent and comparable set of metrics to assess progress, would require a traditional IGR approach. Ideally, such an approach would guide the necessary work at the implementation level—by governments and by institutions—on a host of more specific initiatives that focus on improving mobility, access, quality and so on.

Three main challenges stand in the way of such an approach:

- A practical issue—the complexity and range of topics that would have to be considered
- A theoretical issue—whether seeking a cross-jurisdictional consensus on a wide range of complex matters would lead to a lowest common denominator, or one size fits all, set of outcomes, instead of outcomes focussed on common issues and flexible solutions
- A political issue—the historic resistance of some jurisdictions to engage in anything seen as a dilution of their specific provincial jurisdiction over education

Similar challenges have been overcome in other jurisdictions. Speaking specifically of federal systems, and in the context of a paper that underlined the value of decentralized PSE—i.e. provincially focussed—to promote relevance, quality and efficiency, the OECD’s Director for Education stressed that:

“A key issue ... is to set up mechanisms whereby all government-level players can come to achieve a consensus on an agreed overall and long-term strategy. The importance of developing a set of mechanisms that can achieve a consensus on the broad strategies for higher education cannot be over-emphasized. Given that such mechanisms are put in place, there is a further requirement that the legislations and regulations, especially the financial strategies that are used to steer the system by different jurisdictions, are also harmonized so that they do not pull in different directions.”¹⁸

5.2 ALTERNATIVE IGM APPROACHES

Examples of alternatives to traditional IGR are also common in Canada and in many areas of public policy. Several PSE-specific examples, such as coordinating student financial assistance programming or developing a research agenda, are mentioned earlier in this section.

CMEC itself may be seen as an example of traditional IGR. However, it also commissions IGM-type work through its subsidiary bodies of program-specialist officials, which involve many stakeholders—including federal officials—on particular issues of common concern such as literacy. Alternative IGM approaches are essential to implement and give reality to top-down strategies and priorities. Such expert-driven, bottom-up approaches have also proven useful in advancing many issues in the absence of the high-level direction provided through a traditional IGR exercise.¹⁹

There are a number of PSE-led initiatives on specific issues—for example, institutional and program accreditation and credit transfer—aimed at building on current developments in particular provinces and expanding those efforts to a pan-Canadian level. As well, work among directors of apprenticeship over the years has resulted in the identification of Red Seal trades, with positive effects on labour mobility in the 49 trades so identified.

Indeed, the IGM approach may be more appropriate for pursuing some of the individual elements of a pan-Canadian strategy. The approach would involve building on various components already in place or under development, including:

- the Council of the Federation 2006 discussion paper, *The Future of Post-secondary Education and Skill Training in Canada*.
- federal budget-related initiatives in PSE funding, training, student financial assistance and research
- work done within CMEC and particular governments (both federal and provincial) on specific issues such as literacy, adult learning, Aboriginal education, quality and access

- AUCC and ACCC projects—those done by each organization, and some that could be developed jointly—on key issues and challenges facing the PSE sector
- other inter-jurisdictional work—whether bilateral or regional efforts involving some provinces or by a province with the federal government—on specific issues
- other projects undertaken by government or PSE bodies, on specific issues such as apprenticeship, benchmarks, indicators, credit transfer and credential recognition

The advantages involved in such approaches include feasibility and timeliness. Projects could be launched, implemented and assessed on a problem-specific basis, without the necessity of waiting for a grand design. Leadership by education professionals would greatly enhance the prospects of such efforts. It is expected that educational professionals would pursue pragmatic and practical approaches, and would feel ownership of the very solutions they will be charged with implementing.

The disadvantage of IGM approaches is that they are so specifically focussed they do not allow for the identification and assessment of interconnections and interrelationships among various components. In other words, they are not comprehensive enough to offer such a perspective.

There are examples of IGM-type projects already underway that show promise and could be supported. *Campus 2020* in B.C. recommended that the B.C. Degree Quality Assessment Board (DQAB) and the B.C. Council on Admissions and Transfer (BCCAT) work together to develop a provincial accreditation process and system for all public and private degree-granting institutions, with the goal of implementing a system by 2010.

Campus 2020, however, went on to note, “Ultimately, a system of accreditation will be most effective if it is a truly national system.”²⁰ It went further, recommending discussions with other jurisdictions—perhaps beginning bilaterally with Alberta—with a view to implementing an “inter-provincial accreditation system with the goal of establishing an internationally recognized system of accreditation by 2012.”²¹

Campus 2020’s recommendation regarding use of intermediary, or buffer, bodies and processes, by looking to BCCAT and DQAB, might be characterized as a middle ground between exclusively government-run and exclusively PSE-run mechanisms. It offers a path for overcoming—or at least reducing—education professionals’ resistance to government-led exercises and the built-in obstacles to reaching a national political consensus on PSE issues in the context of traditional IGR. As well, it addresses the fragmentation that is the major shortcoming of adopting a solely IGM methodology.

Another middle-ground mechanism is the Uniform Law Conference of Canada, developed nearly 90 years ago on the initiative of the Canadian Bar Association. The Uniform Law Conference is a volunteer organization consisting of commissioners from all areas of the legal community, including private and corporate practice, criminal defence, academia, government and the judiciary. Approximately 100 commissioners typically attend the annual conference.

The Uniform Law Conference of Canada operates in two sections: the Criminal Section and the Civil Section. The Criminal Section unites prosecutors from federal, provincial and territorial governments with defence counsel and judges to consider proposals to amend criminal laws. This gives the provinces and territories a chance to ask the federal government to make the system better reflect the challenges they face in performing that administration.

The Civil Section assembles government policy lawyers and analysts, private lawyers and law reformers to consider areas in which provincial and territorial laws would benefit from harmonization. Sometimes the federal government has related responsibilities and then it participates in the appropriate discussions. The main work of the Civil Section is reflected in uniform statutes, which the Section adopts and recommends for enactment by all relevant governments in Canada. On occasion, the Section adopts a model statute, on which it expresses no opinion as a matter of policy, but which it offers as a method of harmonization where member governments want to use it.

6. Observations

Traditional IGR is clearly the most appropriate and effective method for setting out a formal, politically endorsed statement of pan-Canadian PSE goals, objectives and priorities. It is also the preferred course for providing energy, impetus and a set of priorities for a more specifically focussed series of interrelated initiatives that can best be accomplished through an alternative IGM methodology.

Alternative IGM approaches have a number of advantages and may well be the most effective method to make timely, practical and realizable progress on issues such as credit transfer and accreditation. One of the strengths of an IGM approach is that it is primarily driven by the sector—by education professionals—rather than being imposed from outside. The active engagement of educational professionals in areas such as accreditation and the Pan-Canadian Consortium on Admissions and Transfer initiative, and the growing call for a national approach are testaments to the benefits of IGM.

With respect to **accreditation**, the recent initiatives by CMEC and recommendations from *Campus 2020* in B.C. provide positive signs of a growing consensus for a pan-Canadian perspective. CMEC's leadership role on the issue of quality assurance and accreditation could be expanded and reinforced by collaborative efforts in the coming months with key stakeholders, including AUCC and ACCC.

As with accreditation, the elements are in place for a collaborative, pan-Canadian approach to **credit transfer**, which can be advanced with continued leadership by CMEC

in conjunction with key institutional stakeholders such as AUCC and ACCC. The sector-driven initiative of the Pan-Canadian Consortium on Accreditation and Transfer—led by the agencies in British Columbia and Alberta—provides strong evidence of the willingness and determination of key players to make progress.

On the question of **goals and objectives**, the Council of the Federation's work of 2006—building on the CMEC's 1999 statement of public expectations for post-secondary education—provides a good foundation for more comprehensive work. The federal Budget 2007 notes COF's work as a key reference point for two things: Ottawa's goal of seeking federal-provincial-territorial agreement on priority areas for investment; and on strengthening accountability to Canadians by ensuring reporting on results and opportunities, and making these reports more accessible to Canadians. It remains to be seen whether the current set of conditions will result in a change in the historic pattern of intergovernmental interaction in PSE—and whether it will allow for development of a pan-Canadian approach that complements the province-specific approach fundamental to PSE policy and programming in Canada.

The issue of data, monitoring and reporting is seen in many jurisdictions as key to making continued progress in PSE. The project initiated in the summer of 2007 by the Canadian Education Statistics Council offers grounds for optimism that such an approach will be defined and implemented in the near future.

7. Conclusions

The idea that Canada should consider adopting a pan-Canadian approach to post-secondary education is an anathema to some. There are those who contend that Canada's high ranking in PSE investment and attainment provides irrefutable evidence of the country's success in this sphere. Others argue that jurisdictional considerations preclude any possible discussion of joint action among governments.

However, this report reveals that there is no room for complacency or jurisdictional battles given Canada's standings relative to other leading industrialized countries. Canada's traditionally high rankings continue to slip, as its trading partners and competitors take proactive steps to improve the efficiency and effectiveness of their tertiary education. Many countries, including those with federal systems, have established explicit, transparent processes to enunciate specific, nationwide goals and objectives for the sector—while fully recognizing the roles of the various components within the sector. These developments underscore that the status quo is no longer an option.

The PSE sector in Canada, for all its strengths and achievements, faces undeniable challenges—as does Canada—as it adapts to the relentless pressures of globalization, technological innovation and an aging population.

Post-secondary education is increasingly called upon to help Canadians develop solutions to these complex issues. The sector's role is rapidly evolving, becoming more central to Canadians' individual and collective interests, no matter the province or territory in which they reside. All citizens and all governments have a stake in ensuring the success of Canadian PSE.

Governments at all levels in Canada acknowledge the need for a highly educated population and recognize the valuable contributions PSE can make to Canada's productivity, profitability, community development and cohesion. Federal, provincial and territorial governments invest heavily in different aspects of PSE to advance social and economic goals. Indeed, this report is sprinkled with examples of federal–provincial–territorial co-operation on a variety of shared PSE priorities.

Canada's decision-makers could take this collaborative approach a step further to identify common problems and explore opportunities for joint action. Regular, structured discussions would enable all parties to work together to ensure they complement and supplement each other's initiatives and strategies for PSE. Such an approach could help identify innovative responses that might not be considered otherwise—or might not be feasible if attempted by a single jurisdiction—and enable earlier implementation.

The OECD has recommended greater collaboration across Canadian jurisdictions, noting the inefficiency of current fragmented and uncoordinated efforts to address problems in adult learning. The OECD thematic review revealed impressive results being achieved in member countries that address PSE from a national perspective.

Part IV of this report sheds light on activities underway in several international jurisdictions. This illustrates to Canadians not only what can be done, but also what other countries are already doing to advance post-secondary education—lessons Canada may be well advised to heed to avoid slipping further behind.

Attachment 1 Quality Assurance and Accreditation

1. OVERVIEW

Until recently, the number of institutions in Canada offering degrees was limited—restricted, for the most part, to public universities authorized by individual provinces under statute to operate as universities and to award degrees.

However, there has been a significant increase in the number and type of institutions awarding degrees: a proliferation of private institutions providing degree-level programs in selected areas, and community colleges—notably in Ontario and British Columbia—have been given the right to award applied degrees in certain areas.

The emergence of new degree-granting institutions has led to legislative and regulatory actions by governments. What started as a learner-protection effort evolved into a more direct provincial and federal interest in quality assurance, as public funding for student financial assistance became available for students pursuing their post-secondary studies in private institutions.

With this expansion comes the need to give serious consideration to a system of institutional accreditation in “response to the public interest in a system of safeguards and assurances that ensure the credentials issued by an institution are sound and can be relied upon. The public interest applies to learners who make substantial investments of time and money in pursuing these credentials, to employers who seek to hire workers for jobs requiring specific skills, and to governments who legislate, regulate, and fund learners and institutions. The concern for quality applies to degrees and other credentials, and it applies to both public and private institutions.”²² The growing array of post-secondary options and credentials triggers a concomitant need for assurances that the credentials issued by institutions and held by individuals can be relied upon in terms quality of learning.

The rapid evolution of PSE in Canada, and its increasing internationalization, have led many to observe that there is a need for clearer and more comprehensive approaches to issues of quality assurance and credential recognition, and that there is a lack of any coherent system to address such issues at the pan-Canadian level. *Campus 2020* is by no means alone in observing, “Canada’s patchwork of quality assurance mechanisms is not only confusing, it is ultimately self-defeating.”²³

Any examination of institutional accreditation would need to take account of the appropriate balance between institutional autonomy and the role of governments in the post-secondary sector. In Canada, the U.S. and a number of Commonwealth jurisdictions, program and institutional

accreditation and quality assessment have been left to the education sector. This is a result of deeply rooted values of academic freedom and institutional autonomy.

Oldford has explored options for institutional accreditation at the PSE level in Canada:²⁴

While there is no national system of institutional accreditation formally established in Canada, this does not mean that there are no quality assurance mechanisms. In most cases, quality assurance mechanisms exist at the institutional level, such as internally managed program review processes. Secondly, quality assurance mechanisms managed by professional and institutional associations exist at both the provincial and national levels, such as AUCC and professional accrediting bodies. Provincial government-initiated quality assurance mechanisms can be found in some provinces. Finally, there are mechanisms that do not fit the general model outlined above, but still add to Canadian post-secondary education’s quality assurance spectrum. These include student outcome surveys, transfer and articulation processes, and published rankings according to performance indicators.

The Canadian Council on Learning’s 2006 report on PSE observed that “the absence in Canada of any national PSI (post-secondary institution) accreditation process, such as those in the United States, is problematic on several levels: it may impede the ability of individual Canadian learners to make independent judgments of institutional quality; it is disadvantageous for the international marketing of PSIs; and it may increasingly push Canadian institutions to seek accreditation through American regional accreditation bodies. This trend may lead to the erosion of particularly Canadian content, language, culture and, ultimately, identity.”²⁵

A ministerial statement on quality assurance in PSE was approved by CMEC in April 2007. The statement focusses on:

- A framework for degrees and qualifications that describes the general learning and competencies expected of degree holders at each level, with a view to articulating threshold degree standards and of enabling the mapping of credentials against one another.
- Standards for quality-assurance reviews that are sufficiently rigorous to generate confidence among all stakeholders that institutional and degree standards are being met.

As Oldford observes, the ministerial statement is described as:

*"...a guideline for decision making relating to new degree programs and new degree granting institutions," conveying the curious assumption that established programs and degree-granting institutions need not be reviewed under similar criteria and processes. This may instigate a system of at least two tiers: those institutions and programs that require external quality review under the Ministerial Statement's guidance and those that do not."*²⁶

2. OVERVIEW OF QUALITY-ASSURANCE MECHANISMS IN SELECTED PROVINCES AND THE U.S.

British Columbia

In B.C., the authority to grant degrees and other credentials is covered by the following pieces of legislation: the *University Act*, the *College and Institute Act*, the *Industry Training Authority Act*, the *Degree Authorization Act* and the *Private Career Training Institutions Act*.

In 2002, the *Degree Authorization Act* was enacted, both to expand the choice for learners of degree-program opportunities within the province and to provide quality control over the provision of such degrees. The Act provides that private post-secondary institutions or universities or colleges from outside the province must have explicit authorization of the minister to operate as universities, offer degrees, or undertake activities related to the granting of degrees.²⁷

Under authority of the Act, the Degree Quality Assessment Board (DQAB) was established to advise the minister on the exercise of statutory discretion over decisions under the *Degree Authorization Act* and, for new degree programs, under the *University Act* and the *College and Institute Act*.

The role of the DQAB, "in its advisory capacity to the minister, is to oversee the degree quality assessment process to ensure consistent and high-quality education standards are met and maintained by institutions in the provincial post-secondary system. The board will also review the work of external academic experts involved in evaluating program proposals."²⁸

This quality-review process is focussed on degree programs. As indicated above, quality assessments for programs related to certifications for trades and occupations falls under the mandate of the Industrial Training Authority.

In April 2007, *Campus 2020* made a number of recommendations on the issues of quality and accreditation. The report set the target of establishing a system for quality assurance and accreditation by 2010. Further, the com-

mission set out to work with other provinces "to develop an inter-provincial accreditation system with the goal of establishing an internationally recognized system of accreditation by 2012."²⁹

Ontario

In Ontario, provincial legislation analogous to British Columbia's exists for the establishment and governance of public post-secondary institutions, and to govern activities of private providers and providers from outside Ontario. Ontario legislation also specifies provisions regarding the authority to grant degrees and other post-secondary credentials.

Following the recommendations of *Ontario: A Leader in Learning*,³⁰ which examined PSE in Ontario, the government created the Higher Education Quality Council of Ontario (HEQCO), an independent Crown agency with a mandate to provide advice to the Minister of Training, Colleges and Universities on improving:

- the quality of education provided in the sector,
- access to post-secondary education, and
- accountability of post-secondary education institutions.

Although the functions of HEQCO focus on quality, they do not appear to be directly involved in accreditation or the awarding of degrees or other credentials. Instead, HEQCO is to focus on a number of endeavours, such as developing targets and performance measures used in the evaluation of the PSE sector and conducting research on "all aspects of PSE, ... including research on the development and design of various models of PSE, on the means of encouraging collaboration between various post-secondary educational institutions in general and in particular in matters relating to the recognition by such institutions of courses and programs of study provided at other such institutions."³¹

The Ontario Post-secondary Education Quality Assessment Board (PSEQB)³² is an arm's-length advisory agency that makes recommendations to the Minister of Training, Colleges and Universities of Ontario on applications for ministerial consent under the terms of the *Post-secondary Education Choice and Excellence Act, 2000*. Ministerial consent is required by all public or private degree-granting organizations, either for profit or not-for-profit, based outside the province, to offer all or part of a degree program in Ontario. It is also required by all private organizations in Ontario, either for profit or not-for-profit, and by all Ontario public organizations not empowered to grant degrees by Ontario statute to offer all or part of degree programs. Consent is also required to use the word "university" relating to an educational institution in Ontario.

Alberta

The Campus Alberta Quality Council is an arm's-length quality-assurance agency that makes recommendations to the Minister of Advanced Education on applications from post-secondary institutions seeking to offer new degree programs in Alberta under the terms of the *Post-secondary Learning Act* (2004) and the *Approval of Programs of Study Regulation* (51/2004). Other than degrees in divinity, all degree programs offered in Alberta, including degrees offered by non-resident institutions, must be approved by the Minister.³³

In fulfilment of its mandate, the council determines the criteria and procedures for its reviews and strikes organizational and program-review teams.³⁴

United States

Following are extracts from *An Overview of U.S. Accreditation*³⁵ for the Council of Higher Education Accreditation (CHEA).

Accreditation is a process of external quality review created and used by higher education to scrutinize colleges, universities and programs for quality assurance and quality improvement. Accreditation in the U.S. is more than 100 years old, emerging from concerns to protect public health and safety and to serve the public interest.

In the U.S., accreditation is carried out by private, non-profit organizations designed for this specific purpose. External quality review of higher education is a non-government enterprise. The U.S. accreditation structure is decentralized and complex, mirroring the decentralization and complexity of American higher education. The higher education enterprise is made up of degree-granting and non-degree-granting institutions. These may be public or private, two- or four-year, nonprofit or for-profit. ... U.S. accreditors review colleges and universities in 50 states and 95 other countries. They review many thousands of programs in a range of professional and specialties including law, medicine, business, nursing, social work, pharmacy, arts and journalism.

The document notes that approximately 80 recognized institutional and programmatic accrediting organizations operate in the United States.

There are four principal types among these 80 recognized organizations:

- Regional accreditors, which accredit public and private, mainly not-for-profit and degree-granting, two- and four-year institutions.
- Private career accreditors, which accredit mainly for-profit, career-based, single-purpose institutions, both degree and non-degree

- Programmatic accreditors, which accredit specific programs, professions and free-standing schools, in fields such as law, medicine, engineering, and health professions
- Faith-based accreditors, which accredit religiously affiliated and doctrinally based institutions, mainly not-for-profit and degree-granting.

Key roles for accreditation are:

- Quality assurance
- Legitimizing access to public funding (federal and state)
- Engendering private-sector confidence
- Facilitating transfers (e.g. of program and course credits)

Accreditation is not a governmental process. Rather it is an education-driven activity characterized by peer review and focussed on the judgment of education professionals. This process differs markedly from the recognition of accreditation, which is, in effect, an accreditation of the accrediting bodies:³⁶

In the United States, accreditors are accountable to the institutions and programs they accredit. They are accountable to the public and government that have invested heavily in higher education and expect quality. Accreditors undertake an organisational self-assessment on a routine basis and are required to have internal complaint procedures.

Accreditors also undergo a periodic external review of their organizations known as "recognition." Recognition is carried out either by another private organization, the Council for Higher Education Association (CHEA, a national coordinating body for national, regional, and specialised accreditation) or the U.S. Department of Education (USDE). Although accreditation is strictly a non-governmental activity, recognition is not.

The paper notes that 19 institutional accrediting organizations were recognized, either by CHEA, the U.S. Department of Education or both. These 19 organizations accredit about 7,000 post-secondary institutions. An additional 61 programmatic accrediting organizations were recognized, covering about 18,000 programs.

The paper summarizes the regime governing post-secondary accreditation in the U.S. in the following terms:

Accreditation in the United States is about quality assurance and quality improvement. It is a process to scrutinise higher education institutions and programs. Accreditation is private (nongovernmental) and non-profit – an outgrowth of the higher education community and not of government. It is funded

primarily by the institutions and programs that are accredited. Accreditation has a complex relationship with government, especially in relation to funding higher education. It adds value to society through assuring quality, enabling government to make sound judgments about the use of public funds, aiding the private sector in decisions about financial support and easing transfer of credit.

Recognition in the U.S. is about scrutiny of the quality and effectiveness of accrediting organizations. It is carried out by the higher education enterprise through CHEA, a private body, and by government (USDE). CHEA recognition is funded by institutional dues; USDE recognition is funded by the U.S. Congress. The goals of the two recognition processes are different:

- CHEA: Assuring that accrediting organisations contribute to maintaining and improving academic quality
- USDE: Assuring the accrediting organisations contribute to maintaining the soundness of institutions and programs that receive federal funds

The two recognition processes are similar: self-evaluation based on standards, site visit and report, award of recognition status. Recognition adds value to society as a vital part of accreditation accountability or "accrediting the accreditors."

CONCLUSION

In summary, there appears to be a considerable, and growing, consensus behind the need for Canada to develop a pan-Canadian institutional solution to the question of quality assurance and accreditation.

The adoption by CMEC in April 2007 of the ministerial statement offers a good basis for continued progress. A similar recommendation by *Campus 2020* in British Columbia provides further evidence of the need for expeditious action at the pan-Canadian level.

If and when action is taken in these areas, it would be highly desirable that systems be devised and implemented on a pan-Canadian basis.

Attachment 2 Credit Transfer

1. OVERVIEW

The inability to transfer academic credits earned in one institution to other institutions can be a significant academic barrier to mobility. Even though credit transferability may not be the most important obstacle to mobility, it is perhaps the most intractable one because so many partners must mobilize to find a solution.

A post-secondary credit is awarded to students who have demonstrated successful completion of a module or course, which represents a portion of an academic qualification. For this to occur, a student must meet a minimum standard, commonly known as a *pass*, in the assessment process. These credits often allow individuals to continue further academic pursuits. They form the building blocks of a post-secondary credential.

A credential (i.e., diploma, certificate and/or degree) is awarded after a student has successfully completed the curricular requirements, one of which is normally the accumulation of a minimum number of credits.

2. WHY IS CREDIT TRANSFER IMPORTANT?

Given the fluidity of the PSE system, credit-transfer systems are vital to support students along educational pathways and to allow for movement between programs and institutions. Credit-transfer systems contribute to lifelong learning, improve and widen post-secondary participation rates, eliminate unnecessary student tuition and educational costs (mitigating borrowing for some students) and reduce post-secondary non-completion rates.

The issue of credit transfer is important not just to the student, but also to governments and post-secondary institutions. For institutions, credit transferability is a key issue given quality-assurance arrangements within the post-secondary education system. For governments, credit recognition is perceived as an important issue; an improved system of credit transfers could result in net savings by enabling more students to complete their studies in a timely manner. An improved system would also increase a student's ability to study anything, anywhere, at any time.

Toyne³⁷ offers a good description of the significance of credit-transfer systems, stating that they are "an essential process whereby qualifications, part qualifications and learning experience are given appropriate recognition (or credit) to enable students to progress in their studies without unnecessarily having to repeat material or levels of study, to transfer from one course to another, and to gain further educational experience and qualifications without undue loss of time."

The easiest way to position the discussion about transferability of PSE credits is to consider credits as a form of currency³⁸—knowledge currency. A student receives knowledge currency for successfully completing a post-secondary credit course. The end goal, for the vast majority of students, is to accumulate currency and convert it into a credential upon completion of studies.

If PSE credits are knowledge currency, then individual institutional senates perform the role of a central bank. By law, institutional senates have the right to establish individualized curricula and graduation requirements. This includes the right to choose not to treat credits (currency) from other institutions as equivalent to their own, because another institution's credits may not conform to the senate's standards.

Meanwhile, governments are encouraging institutions, the private sector and the marketplace to make programs and course offerings more distinctive and to fill educational niches. This may not square with total mutual credit recognition, since niche programs by their nature tend to be seamless and integrated. Recognition of credits from other institutions may undermine both the educational content of the niche program and lessen the uniqueness of the credential it confers.

Extending the monetary metaphor, it is useful to think of each institutional senate as a central bank issuing credits as its own currency, and credit-transfer arrangements as analogous to three types of currency exchange regimes. First, the floating exchange rate. In this scenario, institutions establish a value for internal credits and assess external credits on a case-by-case basis. An example exists in Manitoba, where there is no formal credit-transfer body; students are required to negotiate with individual institutions.

Second is a fixed exchange rate. Under this exchange-rate regime, the value of a credit is matched to the value of another credit (or combination of credits) at a different institution or institutions as agreed upon by the institutional senates. These agreements are often accompanied by the creation of a monitoring agency, which performs one or more of the following tasks: communicate institutional credit-transfer agreements to learners, encourage institutions to develop policies and practices regarding the transferability of post-secondary credit courses, and examine post-secondary research issues (supply, demand and student mobility) and make recommendations to decision-makers about how to improve the system's efficiency. An example exists in the provinces of Alberta and British Columbia, where institutions have agreed to honour credits at face value.

The third is a pure currency union. This is the system commonly used in the European Union (EU) for monetary currency and, increasingly, knowledge currency. Under this type of exchange, all credits are fully integrated. The best example is individual post-secondary institutions. Departments in post-secondary education institutions will generally honour credits awarded by other departments in the same institution at full value.

Some policy-makers have suggested that anything other than a full currency union—a complete recognition of credits from other institutions—represents a mobility barrier for students. This view is based on the notion that individual credits are discrete building blocks of knowledge that should be interchangeable and applicable toward a wide range of credentials. Those who doubt the wisdom of going this far on credit transfer argue that curricula are designed to be integrated programs. Individual credits are not discrete and easily transferable building blocks, but rather parts of an integrated whole.

Consequently, even if credits could be transferred seamlessly from one institution to another, a credential is almost never granted simply because of an accumulation of a certain number of credits.

Canadian post-secondary students' ability to transfer credits between institutions differs depending on where they study and where they wish to study. As a result of the Council of Ministers' Protocol on Credit Transfer (1995), first- and second-year university credits are transferable among nearly all Canadian post-secondary institutions. The remaining post-secondary students, however, do not enjoy such universal credit transfer benefits.

The best available data on credit transfer in Canada come from the Canadian Undergraduate Survey Consortium's (CUSC) *Graduating Surveys 2000* and *2003* (the question was not asked in the 2006 version). According to 2003 CUSC data, just under one in three university students (31%) had transferred some form of post-secondary education credits. This percentage was virtually unchanged since 2000. Over 60% of those credits were transferred from one university to another university.

Generally, most universities in Canada will accept each other's credits for transfer, provided that they fit within the student's degree program, that they have been completed within a certain time period, and that the final grade meets the institution's minimum grade requirement. Transfer of credits is assessed on an individual basis once students apply to the university.³⁹

The absence of a common knowledge currency in Canada results in differing treatment of credits among various institutions (e.g., community colleges to technical institutes or universities), among different domestic jurisdictions (e.g., British Columbia to Ontario or Nova Scotia) and among countries (e.g., Canada to the United States or France).

Some Canadian post-secondary students do benefit from jurisdictional credit-transfer agreements. Alberta and British Columbia students have a much greater ability to transfer credits between institutions within their respective provinces. This creates mobility and financial benefits. Comprehensive credit-transfer agreements allow students to pursue at least a portion of their studies close to their family homes; they often pay substantially lower tuition fees and learn in smaller classes than at larger urban institutions. The transfer arrangements in B.C. and Alberta have, to some extent, dealt with the issue of prerequisite transfer, but have not progressed to the point of credit transfer.

Saskatchewan and Ontario have the makings of credit-transfer programs, but are still far behind Alberta and B.C. Students in the remaining Canadian jurisdictions must deal with one-off arrangements between institutions in various provinces; there has been no systematic attempt anywhere to deal with the issue of prerequisite transfer. Table 4.A2.1 illustrates how credits in the Canadian post-secondary system are treated.

Table 4.A2.1: **Canadian post-secondary education credit transfer overview**

JURISDICTION	TRANSFER GUIDES	TRANSFER COUNCIL	CREDIT EXCHANGE RATES		
			FLOATING	FIXED	CURRENCY UNION
British Columbia	X	X		X	
Alberta	X	X		X	
Saskatchewan	X	X	X		
Manitoba			X		
Ontario	X		X	X ⁴⁰	
Quebec			X		
New Brunswick	X		X		
Nova Scotia			X		
Prince Edward Island			X	X ⁴¹	
Newfoundland and Labrador	X		X		

Source: Education Policy Institute. *Student Mobility and Credit Transfer, A Domestic and International Investigation*. Prepared for the Canadian Council on Learning, 2007.

a) British Columbia

British Columbia has a systematic, province-wide credit-transfer process that has evolved over time. In the 1960s, the provincial government expanded post-secondary education opportunities to all corners of the province. This decision was intended to benefit students from the interior and introduced a post-secondary model whereby students could pursue the first two years of a degree program at a local college and then transfer to one of the province's universities to complete their studies. To ensure this works smoothly, there are more than 50,000 articulation agreements throughout the province.

In 1989, the province created the British Columbia Council on Admissions and Transfer (BCCAT), which facilitates admission, articulation and transfer arrangements among the province's publicly funded post-secondary institutions.⁴² The BCCAT also prepares and maintains a systematic online transfer guide (the *BC Transfer Guide*), which presents credit equivalencies of first- and second-year university-level courses for the province's universities and other institutions. Credit transfer beyond year two is less standardized and is determined by individual institutions.

b) Alberta

Alberta, much like its neighbour to the west, has a province-wide credit-transfer process. As in British Columbia, this process allows students to begin their studies at a public college and transfer to one of the province's universities at a later time to complete the program.

In 1974, the government of Alberta created an independent body—the Alberta Council on Admissions and Transfer (ACAT)—to oversee credit transferability in the post-secondary sector. The ACAT monitors the effectiveness of admissions and transfer policies and practices throughout the province's post-secondary education system and ensures that all stakeholders are aware of the guidelines for transferability. It also publishes the *Alberta Transfer Guide*.

The articulation approach in Alberta, while advanced by Canadian standards, is not quite as comprehensive as that of British Columbia. Articulation agreements are in place between some Alberta universities and its colleges and technical institutes. Through these agreements, specific academic programs are jointly developed, delivery is shared and the universities grant the associated degrees.

c) Saskatchewan

The credit-transfer system in Saskatchewan is in a state of transition. The province's two universities have multiple agreements to recognize each other's credits and an increasing number of partnerships are emerging between the province's colleges and universities. For example, credits earned in select programs (e.g., nursing and business) from the Saskatchewan Institute of Applied Science and Technology and the Saskatchewan Indian Institute of Technologies are now being accepted at the universities.

The recent establishment of the Saskatchewan Council for Admissions and Transfer (SaskCAT) is intended to increase transfer agreements between the universities and training institutions. It is, however, unclear whether SaskCAT will have any role beyond simply encouraging credit transfer between post-secondary institutions in the province and serving as an information clearinghouse for students.

As is the case in most other jurisdictions, Saskatchewan has developed an online *Transfer Credit Guide* to provide up-to-date information on, and transfer status of, articulated courses and programs among provincial institutions.

d) Manitoba

Credit transfer in Manitoba is decentralized. The province does not have a systematic, province-wide process for conducting credit transfers to any post-secondary institutions. Credit procedures therefore vary from one institution to another. There is no credit transfer guide for students.

e) Ontario

There is no systematic or province-wide credit-transfer system in the province of Ontario. Instead, there is a series of individual credit transfer arrangements between interested community colleges, polytechnic institutes and universities. These arrangements are often negotiated on an ad hoc basis, although the province does have a credit-transfer guide.

Ontario institutions also offer an additional form of credit recognition in the form of joint-integrated programs. These allow a student to become integrated into a single program from two separate institutions (e.g., a college and a university). Students receive a single credential from two institutions taught over a fixed period of time.

The Council of Ontario Universities—through the Student Equivalency Program and the College-University Consortium Council—works to ensure student credit-recognition is successful. However, membership in the council is voluntary and credit-recognition agreements are left up to individual institutions to negotiate with other institutions.

f) Quebec

Quebec has a high degree of credit transferability within its Université du Québec system. These arrangements bear a strong resemblance to credit-transfer agreements commonly found in some American state university systems (California, Texas, etc.). The remaining Quebec universities are not involved in a province-wide transfer process and transferability is handled between institutions. There is no provincial guide covering equivalencies or transfers.

g) Atlantic region

None of the Atlantic Provinces has a systematic or province-wide credit-transfer system. Credit acceptance is generally assessed locally and, in Nova Scotia, credit recognition involves a significant number of internal decision-makers. However, the four provincial college systems—New Brunswick Community College, Holland College

(Prince Edward Island), the College of the North Atlantic (Newfoundland and Labrador) and Nova Scotia Community College—have a formal commitment to recognize transfer credits for all courses in approved programs.

In Prince Edward Island, a small number of articulation agreements for joint programs and credits exist between the province's single university—the University of Prince Edward Island—and Holland College. Also, the University of Prince Edward Island has committed to recognize credits earned at any university in Canada.

Nova Scotia and Prince Edward Island do not produce transfer guides. New Brunswick produces a *Guide to Transfer of Credit* that documents available credit transfer between New Brunswick's community colleges and universities. Newfoundland and Labrador—through the Articulation, Transfer and Admissions Committee of the Council on Higher Education—compiles an annual transfer guide that includes transfer of credit arrangements for courses and programs within the provincial post-secondary system. The council, however, does not have any formal power to ensure credits are ultimately accepted at the province's two public institutions—Memorial University and the College of the North Atlantic. Rather, it functions as an information clearinghouse for students.

3. CREDIT TRANSFER— INTERNATIONAL PERSPECTIVES

This section briefly examines credit-transfer arrangements in Australia, New Zealand, the U.K., the U.S. and Europe.

In 1995, Australia implemented a national framework for credit transfer between the vocational and higher education systems. This framework does not guarantee transferability between the two systems; it sets guidelines for individual articulation agreements to be signed between institutions.

Until 2007, credit transferability in Australia was fairly *ad hoc*—all regional and inter-institutional credit-transfer agreements were voluntary. In March 2007, the country's elite institutions, known as the G8, signed a credit-transfer agreement permitting full transfer of credits among them.

In the United States, where a cornerstone of the post-secondary education system is its flexibility and openness, all states have tried to find ways to promote credit transfer between two- and four-year systems. The most popular mechanism is state-wide cooperative agreements between institutions. These arrangements are laborious, often formulated on a course-by-course, department-to-department or institution-to-institution basis.

Thirty states have passed legislation that requires public community colleges and four-year public institutions to establish transfer agreements. In other states, there has been a movement to either a common core curriculum

(23 states) or the creation of a state-wide common course-numbering system (eight states). Some states (15) have launched state-wide financial incentives for institutions to develop articulation agreements, while others (Maryland, Massachusetts and Wyoming) offer scholarships or tuition rebates to encourage transfers between two- and four-year public institutions. Some of these arrangements have, as a by-product, increased the transferability of credits between four-year institutions. All of these arrangements are strictly within the state. No fixed arrangements exist for credit transferability between two- and four-year institutions in different states.

In the United States, as noted above, some state-wide initiatives have promoted credit transferability within public institutions within single states. But transferability across state lines or between public and private institutions (whether in- or out-of-state) is largely conducted *ad hoc*. It is unclear from public documentation whether any of these arrangements deals with the issue of prerequisite transferability.

In other places, such as New Zealand and Great Britain, the emphasis in credit-transferability has been to promote credit transfers within the higher-education system. In England at least, credit-transfer arrangements are not even national in scope—they tend to take the form of regional articulation agreements involving just a few institutions (Scotland and Wales, on the other hand, have nearly full credit-transferability within their borders).

The European Credit Transfer System (ECTS) has received a great deal of attention for the way in which it makes possible credit-transfers among European countries. However, this system is more impressive for the scope of its work and ambition than for its practical effects for European students.

The ECTS was created to facilitate students' transfers under the Erasmus program. This is important because Erasmus is not about mobility *per se*. It is not about starting a degree in one country and finishing it in another; it is about starting and finishing a degree at one institution and having a year abroad somewhere in between. To do this, agreement was needed about what constituted a credit; the home institution had to have a sense of the amount of work undertaken by the student while abroad. This was an arduous task. Not all countries were on a credit system to begin with, and the number of credits per year of study in those that had a credit system varied from one to 120.

Under Erasmus, the student's home institution still has full veto power over the student's selection of courses abroad—and it is under no compulsion to accept all credits earned abroad as equivalent. Students must still negotiate their course of study at a home institution, just as they do under various *ad hoc* arrangements in Canada. The fact that the home institution approves the course of study in

advance means that the problems of credit recognition and prerequisite recognition are solved simultaneously under Erasmus. It should be noted, however, that this works only because a student begins and ends his or her studies at a single institution.

Some universities in Europe are now starting to work on the problem of prerequisite transfer. The Tuning Project⁴³—an initiative of roughly 100 universities, as opposed to the government-led Erasmus—is an attempt by institutions to make their curricula more comparable and to identify common points of reference for generic and subject-specific competencies in bachelor’s and master’s degree programs in nine specific subject areas. Over the long term, this may have a more profound effect on portability than Erasmus because it implies a real convergence of quality standards rather than a simple declaration of equivalencies.

Table 4.A2.2: **Selected jurisdictional post-secondary education credit-transfer overview**

JURISDICTION	TRANSFER GUIDES	TRANSFER COUNCIL ⁴⁴	CREDIT EXCHANGE RATES		
			FLOATING	FIXED	CURRENCY UNION
Australia			X	X ⁴⁵	
Europe	X	X	X	X	
New Zealand		X		X	
United Kingdom	X	X	X	X	
United States	X	X	X	X	

Source: Education Policy Institute. *Student Mobility and Credit Transfer, A Domestic and International Investigation*. Prepared for the Canadian Council on Learning, 2007.

CONCLUSIONS AND OBSERVATIONS

The past decade has seen increasing interest in the issue of credit recognition and transfer around the globe. This interest is fuelled by a desire to further lifelong learning, improve and widen post-secondary participation, increase student mobility and reduce non-completion.

The limitations of many credit-transfer arrangements must be recognized. While governments can encourage and promote credit transfer, credit-transfer decisions are mostly taken at the institution level.

Two of the most significant developments in mobility have been institution-led—the G8 agreement in Australia and the Tuning Project in Europe. Government initiatives have tended to be by-products of national reviews of PSE where the mobility issue was addressed.

Given the increasing need of individuals to pursue their education and training in other institutions, and often in other types of institutions, it is essential that learners be given the assurance that successfully completed PSE work will be recognized by the host institution.

The Canadian Council on Learning notes the promise that the Pan-Canadian Consortium on Accreditation and Transfer holds. Every effort must be made to ensure that any barriers to student mobility are dismantled and that full credit recognition will be assured on a pan-Canadian basis.

Attachment 3 Prior Learning Assessment and Recognition (PLAR)⁴⁶

1. OVERVIEW

Prior Learning Assessment and Recognition (PLAR) concerns itself with all forms and styles of adult learning. Across the span of its various activities, the field of PLAR is based on two primary principles:

- 1) Adult learners should not have to devote additional time, energy and money to learning over again what they already know and can do.
- 2) What adults know and can do matters more than where or how they acquired that learning.

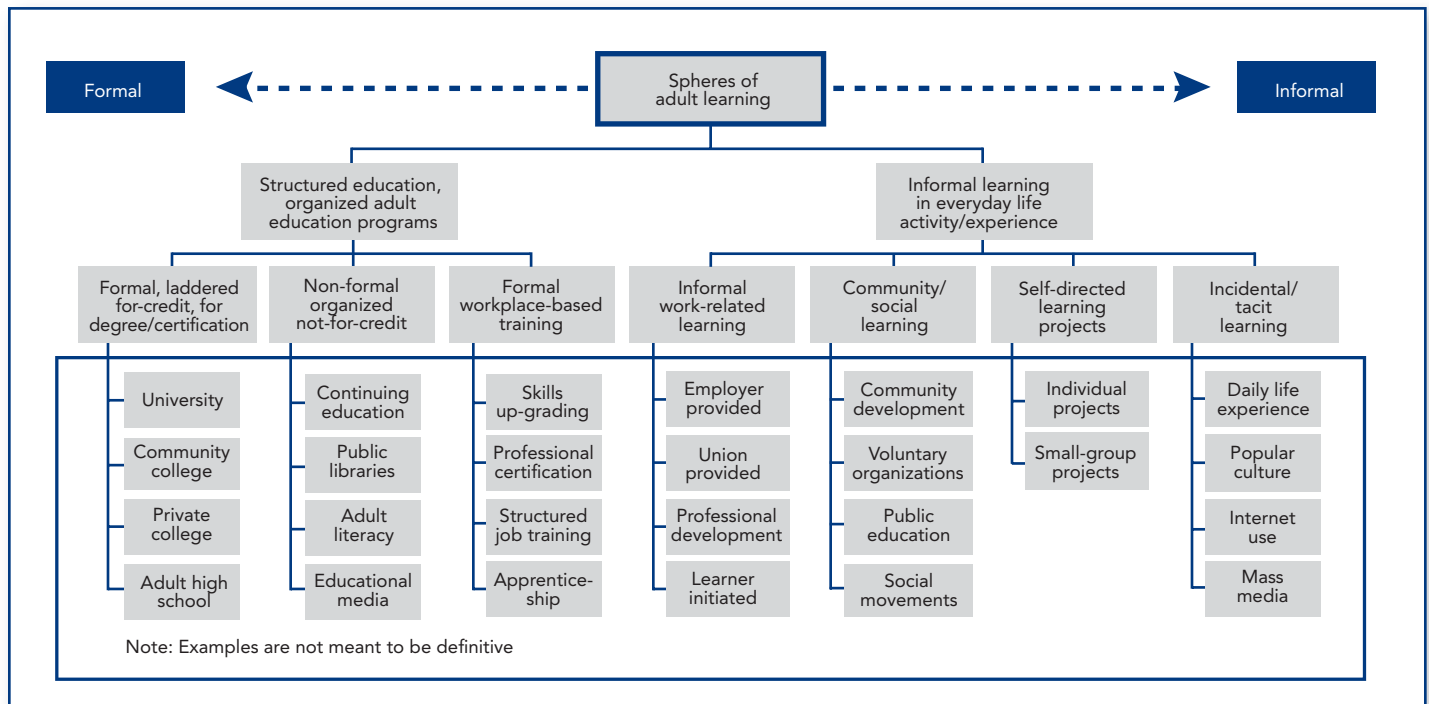
The *Spheres of adult learning* chart⁴⁷ presented below conveys something of the immense scope and diversity of adult learning and the variety of settings in which it

takes place in Canadian society. The chart also identifies two basic categories of adult learning:

- 1) Structured education and organized adult education programs
- 2) Informal learning in everyday life activity/experience.

Accordingly, it is the purpose of PLAR in its various forms to strengthen the links and connections within and between each of the major categories of learning. This helps enable adults to use their skills and knowledge most effectively in facing the continuous transition challenges presented by Canada's turbulent economic and social conditions.

Figure 4.A3.1: **Spheres of adult learning**



2. PLAR AND FORMAL EDUCATION AND TRAINING

A good deal of PLAR attention is focussed on encouraging the recognition, interchangeability and acceptance of formal education and training credentials (e.g., degrees, diplomas, certificates, licenses). The complexities of developing effective policies and mechanisms to ensure interchangeability on a pan-Canadian basis are challenging. A web of institutional autonomies, provincial jurisdictions,

and professional/sectoral interests are all factors, as well as concerns for quality and public accountability.

Progress in this regard remains frustratingly slow, but there is mounting evidence that Canada needs a more efficient and effective way to make international and domestic credentials more easily transferable across the country. This is important to meet unrelenting demographic, economic and social pressures in Canada.

3. PLAR AND INFORMAL/EXPERIENTIAL LEARNING

If the first major category of formal and credentialed adult learning is characterized by compartmentalization and fragmentation, the second encounters lack of visibility and severe marginality. It constitutes the hidden iceberg of adult skills and knowledge. This situation has also created a deep and often unbridgeable gulf between the two categories of adult learning—formal and informal—despite significant PLAR efforts over two decades to create effective and efficient links between them.

Before considering the two main types of PLAR, however, it is important to understand the nature of informal/experiential adult learning in Canada. Because no formal records are kept or credentials issued⁴⁸ in informal learning, the skills and knowledge gained through significant workplace, community and family learning experiences tend to fade from memory. Individuals internalize the skills and knowledge they gain through experience and thus take them for granted. They simply do the job every day; they do not consciously exercise a skill set. Meanwhile, if virtually any group of Canadians (highly educated and credentialed or not) is asked where they learned the most important things they know and can do—in school? or out of school?—the latter is the consistent response.

What is responsible for this strange attitude about learning that everyone *knows* at some level is real and important, but that remains invisible and ignored? One reason may be that in the long struggle to build a comprehensive, sequenced and high-quality system of formal education and training, learning came to be seen almost exclusively within that context.⁴⁹ Despite the fact that many formal, structured education and training programs contain a strong element of experiential practice (e.g., internship, articling, practice teaching, work terms, apprenticeship) the sense that valid, usable skills and knowledge can be attained through experience *outside* those formal programs has been lost.

This attitude has been deeply ingrained in Canadian society. Many adults—especially those who have not succeeded in formal education and training—do not consider themselves as learners at all, unless they are actually enrolled in a formal education or training program or course. This despite the fact that, as David Livingstone's survey research dramatically demonstrates, the average Canadian adult devotes three times as many hours per week (12–14) to intentional informal learning activities, as he or she does in formal education and training activities (three to four hours).⁵⁰

Large segments of Canadian society have little confidence in their ability as learners and are intimidated by the prospect of undertaking any type of formal education or train-

ing program. Often this is due to some combination of barriers to participation or lack of past success, added to the fact that they have come to equate and internalize the general view that learning equals schooling. As a result of transition challenges created by industrial dislocation and restructuring, technological change and labour-market turbulence, many adults who previously considered themselves skilled workers, technicians and professional personnel with advanced qualifications suffer the loss of confidence and sense of hopelessness that marginalized groups typically face.

Over the past two decades two main clusters of PLAR activity have developed in an effort to recover and recognize the hidden iceberg of skills and knowledge Canadians have gained through informal/experiential learning:

- portfolio learning approaches
- competency-based/essential skills approaches

4. PORTFOLIO LEARNING APPROACHES

This process has been largely used to enable mid-career adults without a college diploma or university degree to gain admission and advanced standing in post-secondary programs on the basis of skills and knowledge gained through work and life experience. To demonstrate to institutional and academic authorities that their learning is substantial, the process is robust and rigorous. It has been used successfully in a variety of post-secondary institutional settings and with a wide diversity of adult learners.⁵¹

In its standard form, a portfolio learning program is a facilitated process in which a group of eight to 12 participants and a trained practitioner meet for three hours, once a week over a 10-week period. The program enables participants to systematically and comprehensively identify, articulate, provide evidence for and present the complete range of the skills and knowledge they have acquired through their work and life experience, as well as their formal education and training. The process builds confidence and motivation, identifies learning strengths and gaps, clarifies future employment possibilities, and develops learning and action plans to help the individual participate more fully in economic and civic life.⁵²

Despite repeated and positive demonstrations and evaluations over 20 years, the portfolio learning approach remains marginal and vulnerable at the post-secondary level in Canada. This is especially the case with universities; less so with colleges.

A recent survey study in Alberta⁵³ reported that PLAR was not a widely accepted practice within the respondents' institutions. While many institutions had PLAR policies in place, there was still much to be done to implement the

process effectively. Respondents also reported continuing strong institutional resistance to such recognition. They reported that most administrations regard PLAR as a drain on resources and that most faculty regard it as a lowering of standards. It seems unlikely that the situation is much different elsewhere in the country.

While there is a good deal of discussion in the PSE sector about PLAR—the Canadian Association for Prior Learning Assessment (CAPLA) has held many briefing sessions and annual national conferences on the subject—and while PLAR is sometimes on the agenda at PSE meetings, there is no coherent or systematic approach to the issue. At the university level, each institution charts its own direction; PLAR programs and services remain subject to funding exigencies and changes in institutional leadership. The same can be true in the college sector, although services such as PLAR are better supported by direct community and workplace links, greater capacity for collaborative support and more innovative outreach.

There are, however, some outstanding PSE examples of PLAR adoption and innovation. Athabasca University has a well-developed and integrated PLAR and portfolio learning systems. Some other universities have specific programs that provide access to adult learners through the use of PLAR principles and practices. The School of Public Administration at Dalhousie University has admitted to its MPA (Management) program a substantial number of successful mid-career public-service professionals who lack the normal undergraduate prerequisite. These candidates have been admitted on the basis of an academic skills and knowledge portfolio.⁵⁴ Similarly, the Adult Education program at the University of Regina has a well-developed PLAR policy and process in place.

In the college sector, PLAR and portfolio learning are more widespread and evident. The Nova Scotia Community College (NSCC) is the first post-secondary institution to identify itself as a Portfolio College. This reflects its adoption of PLAR as integral to its learning philosophy and practices. Many other colleges across the country use PLAR to a greater or lesser extent.⁵⁵

In terms of provincial jurisdictions, Manitoba and Saskatchewan appear to have the most fully articulated adult learning policies and programs, incorporating portfolio learning and PLAR principles and practices. Others, such as Nova Scotia, have been developing policy frameworks which await completion and implementation. In Alberta, British Columbia and Quebec, efforts are underway to revive the adult learning and PLAR leadership that flourished in the mid-1990s.

Certainly, there seems little doubt that there is a strong and growing public demand for the recognition of prior formal and experiential learning in Canada. Recent survey research reports strong interest across all age groups and types of Canadian adults who wish to obtain such

recognition. It indicates they would take advantage of PLAR services if they were available and would use them to pursue further education and training.⁵⁶

Some may object that this situation is hypothetical. However, these responses correspond to previous studies showing that those who obtain a sense of achievement and confidence in their learning capacities are most likely to engage in continuing adult education and training activities. It seems probable that enhancing adults' awareness of their experiential and formal learning assets would have positive results for increased participation in further education and training.

The unrelenting pressures of demographic, economic and social change affecting Canada and its citizens must also be taken into account. These are powerful drivers that prompt people to consider their skills and learning assets in more explicit terms and to take steps to strengthen and augment those assets in order to meet the transition challenges they face.

At the same time, the PSE sector must provide better accessibility and transition support for adult learners. A recent report done for Adult Learning Friendly Institutions Canada (ALFICan) suggests practical ways to encourage and support adults to become more engaged in formal and structured learning programs.⁵⁷

5. COMPETENCY-BASED/ESSENTIAL-SKILLS APPROACHES

Over the past decade, substantial investments have been made in private- and public-sector workplace settings to develop skills and competencies grids and performance indicator frameworks against which an individual's capacity for various jobs, roles and responsibilities can be assessed. Other countries have developed extensive vocational skills frameworks as well.⁵⁸

This form of PLAR is based on the premise that the specific skills and knowledge an individual can demonstrate are at least as important as the formal credentials he or she may have attained. This approach begins by analyzing the specific skills and knowledge required to do particular jobs or types of jobs. If individuals can show that they possess sufficient competencies to do the job satisfactorily, they should be eligible for employment and promotion, no matter where or how they acquired the necessary learning. Extensive and detailed inventories of occupational skills, competencies and responsibilities are widespread in many organizations, as are procedures for individuals to match their skills and knowledge to those requirements.

This approach opens opportunities and possibilities for people who might otherwise be eliminated simply because they do not possess this or that formal credential. At the

same time, several important characteristics of informal adult learning must also be kept in mind: that many people do not consider themselves learners, do not understand the skills and knowledge they have acquired through experience, take their skills and knowledge for granted, and are intimidated by the prospect of assessment. Such adult learners do not tend to think in terms of transferable skills and will regard competencies in a very literal and fragmented way. Many adult learners will be similarly intimidated by written forms of assessment and evaluation.

Therefore, the most successful and productive competency-based essential skills and vocational qualifications frameworks and procedures must be supported by and embedded with advising and counselling support and portfolio learning-type processes. These will build the confidence and motivation of individuals being assessed and evaluated. There seems little doubt that this more open, flexible and sensible approach to occupational and workplace skills and knowledge will continue to grow.

6. BACK TO THE FUTURE: FOCUS ON THE ADULT LEARNER

It is remarkable that the first post-secondary institution in Canada to fully embrace the concept of portfolio learning and PLAR was the First Nations Technical Institute (FNTI), located on the Tyendinaga Mohawk territory in Easter, Ontario. Two decades ago, FNTI saw, in what was then a largely U.S.-based higher education innovation, a way to connect with and build upon Aboriginal learning traditions in order to encourage and support learners from the communities it served. These learners were encouraged to succeed in programs that would enable them to participate in a modern economy.⁵⁹

As a previous CCL report noted in reference to Aboriginal learning, the impact of mainstream formal education and training on that population, without regard to their own learning and cultural traditions, has been disastrous: the wrong statistics are gathered, learning deficits rather than strengths are emphasized, and experiential and cultural learning is ignored. To a significant degree, the same can be said about adult learning in Canada generally outside the formal education and training system.⁶⁰

To recognize, support and draw upon the hidden iceberg of adult learning in Canada is to rediscover and reanimate a tradition of informal/experiential learning that has always existed. There is, moreover, no necessary contradiction or mutual exclusivity between the two major categories identified in the *Spheres of adult learning* chart cited above; on the contrary, strengthening the recognition and respect accorded to informal/experiential learning will only widen access and increase participation in the formal education and training system.⁶¹

It is not necessary to start from scratch. In considering the informal/experiential aspects of adult learning in Canada, it is striking to note the degree to which the community-based, voluntary sector is of central importance. These are the agencies and services closest to the adult learners who are marginalized and who face barriers to participation in structured formal education and training. They provide a transition base for newcomers to Canada; support those on welfare, the unemployed, older workers and the elderly. Like the learners they support, many of these organizations would not consider themselves to be primarily learning organizations.⁶² But indeed they are; the on-the-ground transition challenges facing their clients make sustained and intensive attention to their skills and knowledge assets imperative.

This is not to say that better provision does not need to be made for adult learner access and support in the formal education and training sphere. Concerns about high-school leavers abandoning their studies to take jobs in a boom economy would be much alleviated if those individuals could utilize the experiential skills and knowledge they gain in the labour market to return to formal education and training—rather than having to go back to square one. A wholesale creation of an adult schooling system would be not only prohibitively expensive but also redundant. Rather, much greater attention and sustainable support must be provided for the third sector of learning, made up of voluntary and community-based adult learning.

In this regard, the experience over the past decade of the Prior Learning Assessment (PLA) Centre, located in Halifax, is instructive. Itself an independent, community-based agency, the PLA Centre has used portfolio learning and PLAR principles and practices in collaboration with a wide range of partners to provide those services to a broad diversity of individuals, including adults facing low literacy and systemic barriers, social-assistance recipients, the unemployed, inmates in correctional institutions, mid-career changers, immigrant groups and others. The identification, articulation and presentation of what they know and can do—their skills and knowledge assets—has had a transformative effect time and again for individuals who feel they have few options or prospects. Invariably, they report and demonstrate increased self-esteem and markedly higher levels of motivation to move towards their goals, based on the confidence and motivation they have acquired through their learning accomplishments and capacities.⁶³

While the portfolio learning approach remains a superb bridging process for many adults who wish to pursue further for education and training, the work of the PLA Centre and its partners has demonstrated that the portfolio learning approach results in a number of valuable direct

spin-off benefits. These include increased labour-market participation and re-entry, improved career advancement and enhanced community and family engagement.⁶⁴

Current demographic, economic and social trends make several priority adult-learning areas obvious. Canada can no longer afford to ignore and waste the human-resource potential represented by the hidden iceberg of informal adult learning. Significantly increased labour-market and civic participation by marginalized and excluded group is essential. So too are improved recognition mechanisms for international credentials and improved transition support that recognizes, respects and builds upon the cultural and experiential learning resources of newcomers. Similarly, older workers need support to understand better and utilize the full range and depth of their skills and knowledge assets and to identify and address their learning gaps. Portfolio learning programs for young people

making the transition from post-secondary education to the labour market and for seniors seeking encore careers or wishing to give back through volunteerism are two other priority areas for improved support for experiential as well as formal adult learning.

The task of developing a more dynamic and holistic learning culture—a culture where learning is lifelong and occurs in many settings—is one of profound social innovation. In that context PLAR and portfolio learning is an essential connective tissue that enhances of the four pillars of learning that the CCL has adopted as central to its mission. As such, it must link and integrate the highly segmented and compartmentalized components of the education and training system, with the informal experiential learning that occurs in every individual, family, community and workplace in Canada.

- 1 Rae, B. *Ontario: A Leader in Learning* (Toronto: Government of Ontario 2005).
- 2 Plant, G. *Campus 2020: Thinking Ahead: The Report* (British Columbia: 2007).
- 3 Cameron, David M. "Collaborative Federalism and Post-secondary Education: Be Careful What You Wish For," John Deutsch Institute for the Study of Economic Policy, 13 February (Kingston: 2004), p. 3.
- 4 The Natural Sciences and Engineering Research Council of Canada
- 5 The Social Sciences and Humanities Research Council of Canada
- 6 Canada Foundation for Innovation
- 7 Canadian Institutes of Health Research
- 8 It should be stressed that the identification of an issue as one of "national interest" does not automatically imply that "national" is synonymous with "federal."
- 9 The priorities regarding literacy and Aboriginal education, of course, are intended to be pursued by all components of the education system(s), including K-12 and PSE.
- 10 Plant, G. *Campus 2020: Thinking Ahead*, 2007.
- 11 Ontario colleges and universities are gradually working toward a more integrated system of credit transfer. There is, however, much work to be done in both streams; in many cases, Ontario's system is effectively still a floating system.
- 12 A series of credit-transfer, block-transfer and articulated programs have been developed between Prince Edward Island post-secondary institutions and institutions both within and outside of the province.
- 13 CMEC. *Report of the CMEC Working Group on Credit Transfer*, (Toronto: Oct. 4, 2005). Available at: <http://www.cmec.ca/publications/CreditTransferGroupReport2005-en.pdf>. Accessed May 11, 2007.
- 14 The distinction between "IGR" and "IGM" approaches, found in a recent paper by political scientists at Ryerson University, distinguishes between the "macro level of federalism and intergovernmental relations"—which they label IGR—and the "micro level of intergovernmental management"—labelled IGM. IGR is more "central agency" focussed, and political in nature, while IGM refers to arrangements in which "policy area professionals and intergovernmental specialists in departments interact" take "a problem-solving orientation, and [where] analysis centres on the more routine transactions between governments at the administrative level." See Carolyn M. Johns, Patricia L. O'Reilly and Gregory J. Inwood, "Intergovernmental Innovation and the Administrative State in Canada," *Governance: An International Journal of Policy, Administration, and Institutions*, Vol. 19, No. 4 (October 2006). pp. 627-649.
- 15 Other examples—while not strictly speaking "IGR"—could include various Royal Commissions on matters of national importance and interest. As noted, such mechanisms have regularly been employed at the provincial level with respect to PSE, but their use at the national or pan-Canadian level has been rare.
- 16 Section 4 is entitled "What might constitute the components or characteristics of a pan-Canadian framework?"
- 17 Previous federal governments have also expressed interest in developing a more comprehensive approach to issues touching on PSE, through such initiatives as the *innovation* and *productivity* agendas of the late 1990s. Such initiatives in the past have foundered, largely as a result of the resistance of some provinces to accepting a formal federal role in what they view as the exclusive provincial domain of post-secondary education.
- 18 Ischinger, Barbara. "Post-Secondary Education: The Challenges Ahead," Higher Education in Federations Conference (Ottawa: 14-16 January 2007). pp. 2-3.
- 19 See, for example, Stefan Dupre's classic study of adult occupational training programs in the 1960s resulting from a consensus of "working-level" expert officials. *Federalism and Policy Development: The Case of Adult Occupational Training in Ontario* (Toronto: University of Toronto Press, 1973).
- 20 Plant, G. *Campus 2020: Thinking Ahead*, 2007.
- 21 Ibid.
- 22 Ibid, p. 53.
- 23 Ibid.
- 24 Oldford, S. A. "Exploring Options for Institutional Accreditation in Canadian Post-secondary Education," School of Public Administration (Victoria: University of Victoria, 2006) p. 30.
- 25 Canadian Council on Learning. *Canadian Post-secondary Education: A Positive Record – An Uncertain Future* (Ottawa: 2006). p. 57.
- 26 Oldford, S. A. "Exploring Options," pp. 35-36.
- 27 Available at: <http://www.aved.gov.bc.ca/degree-authorization/board/welcome.htm>
- 28 Ibid.
- 29 Plant, G. *Campus 2020: Thinking Ahead*, 2007. p. 55.
- 30 Rae, B. *Ontario: A Leader in Learning*, 2005.
- 31 Higher Education Quality Council of Ontario. "Priorities and research agenda for the Higher Education Quality Council of Ontario: a discussion paper" (Toronto: 2006).
- 32 More information is available at <http://192.139.188.172/peqab/>
- 33 Available at: www.caqc.gov.ab.ca/
- 34 Available at: www.caqc.gov.ab.ca/
- 35 Eaton, Judith S. *An Overview of U.S. Accreditation* (Washington D.C.: Council for Higher Education Accreditation, 2006).
- 36 The CHEA website has a substantial section describing the activities of what it calls "degree mills" and "accreditation mills," and provides tips on how consumers—learners or employers—can detect such mills and distinguish them from legitimate PSIs and accrediting agencies.
- 37 Toyne, P. *Educational Credit Transfer: Feasibility Study* (London: DES, 1979).
- 38 Berkhadnia, B. *Credit Accumulation and Transfer* (Oxford: Higher Education Policy Institute, 2004).
- 39 Saskatchewan Council for Admissions and Transfer (SaskCAT) (Saskatchewan: 2007). www.saskcat.ca/faq/.
- 40 Ontario colleges and universities are working gradually toward a more integrated system of credit transfer. There is, however, much work to be done in both streams; in many cases, Ontario's system is effectively still a floating system.

- 41 A series of credit-transfer, block-transfer and articulated programs have been developed between Prince Edward Island post-secondary institutions and institutions both within and outside of the province.
- 42 There are also a few private post-secondary institutions in British Columbia offering academic courses that are transferable to public degree-granting universities.
- 43 Available at: www.europeunit.ac.uk/qualifications/tuning_project.cfm
- 44 The title or brand may be different in select countries; however, many of the core functions defining a Council are applicable to agencies, authorities and networks. These are the names that many jurisdictions have selected for credit-transfer information clearinghouse groups.
- 45 G8 institutions only.
- 46 This term is alternated with and sometimes superseded by recognition of prior learning (RPL). Besides being shorter, RPL has the advantage of de-emphasizing the assessment/evaluation aspects of learning recognition. Those aspects remain implicit in the word recognition, but RPL reduces the anxiety and intimidation that many people feel when confronted by the prospect of assessment/evaluation processes.
- 47 The Spheres of Adult Learning chart was developed by Dr. Richard Williams of PRAXIS Research and Consulting for CCL's Adult Learning Knowledge Centre and was part of his Mapping the Field presentation at the knowledge centre's national symposium in Halifax in June 2007.
- 48 Portfolio learning participants are astonished to discover, when they begin to take their experiential skills and learning seriously, the array of certificates of successful completion and participation (e.g., first-aid and lifesaving programs, voluntary sector activities) and other tangible forms of evidence of their learning achievements (e.g., work reports, newspaper items, association minutes and letters of appreciation).
- 49 It is striking to note how much public and policy discussion about lifelong learning is in fact about lifelong schooling—that is, formal and structured learning opportunities. This is one reason why CCL emphasizes the importance of lifewide as well as lifelong learning, to take into account the learning that takes place experientially in the workplace, the community and the family.
- 50 Livingstone, D.W. "Exploring the iceberg of adult learning: findings of the first Canadian survey of informal learning practices," *Canadian Journal for the Study of Adult Education*, vol. 13 (2) (Toronto: 1999).
- 51 Portfolio learning programs take various forms and are often accompanied by additional advising and support services. Universities and colleges often assert, with some justification, that they do PLAR as a regular part of their activities, but on an ad hoc and informal basis.
- 52 While the process and sequence of the portfolio learning process is generic, it can be adapted and varied for different participant groups, depending on their characteristics and objectives. The form, length and focus of a portfolio program for low-literacy adult learners will differ from that for mid-career professionals seeking entry to advanced academic programs. However, both groups will be engaged in similar efforts to understand, document and present their skills and knowledge. Other variations are becoming available, including distance-delivery versions, some on a one-on-one basis, and others that try to re-create the social learning dynamic that characterizes the process in face-to-face group settings.
- 53 Barrington Research Group. *Best Practices in Prior Learning Assessment and Recognition (PLAR): Final Report* (Calgary: May 2005).
- 54 Myers, Douglas. "Access, innovation and excellence in graduate professional programs: a Canadian example," *The Journal of Continuing Higher Education* (U.S.: 2005). Faculty report no discernible difference between portfolio entrance and those with the traditional formal pre-requisites; the former perform at least as well as the latter and graduate at high rates.
- 55 These would include, as examples, the University College of the Fraser Valley (UCFV - now the University of the Fraser Valley), Mount Royal College in Alberta, the Saskatchewan Institute of Advanced Science and Technology (SIAT), Red River College in Manitoba, Centennial and Humber in Ontario, and Holland College in PEI.
- 56 Livingstone, D.W. & Myers, Douglas. "'I might be overqualified': personal perspectives and national survey findings on Prior Learning and Assessment Recognition in Canada," *Journal of Adult and Continuing Education* (U.K.: 2007).
- 57 Zakos, Paul. "ALFICan (Adult Learner Friendly Institutions Canada) Report," (April 2007). See also <http://web.mac.com/alfican>
- 58 As, for example, the U.K.'s National Vocational Qualifications (NVQs).
- 59 FNTI has continued to lead in this regard, both in terms of the development of PLAR/portfolio learning in Canada and its applications internationally. In May 2007, FNTI held its 18th annual national PLAR Practitioners Workshop in Belleville, Ont.
- 60 Canadian Council on Learning. *State of Learning in Canada: No Time for Complacency* (Ottawa: 2007). <http://www.ccl-cca.ca/SOLR>
- 61 Others, such as Frontier College and Community Literacy Networks, however, certainly do.
- 62 The Centre for Work and Education in Winnipeg has similarly worked with communities undergoing profound industrial dislocation in the face of global competition, labour-market realities and international financial conditions—and with very similar results.
- 63 The PLA Centre has developed a network of partners across the country and a national reputation for innovation and leadership in the application of portfolio learning and PLAR principles and practices. For these reasons, CCL has asked the PLA Centre to take the lead in developing a Pan-Canadian PLAR/Portfolio Learning Framework. That work is well underway and will be completed by the end of March 2008.
- 64 The research by Serge Coulombe and his colleagues on the productivity and economic payoff resulting from a moderate increase in adult literacy levels is extremely significant in this context (see, Coulombe, S. et al. *Literacy Scores, Human Capital and Growth Across 14 OECD Countries* (Ottawa: Statistics Canada, 2004) "Counting heads: A breakthrough in measuring the knowledge economy," *The Economist* (2004) "Investing in people," *The Globe and Mail* (Oct. 11, 2005). This work makes the explicit assumption that individuals continue to learn after they leave formal schooling. See also, Hicks, J. and Myers, D. *Portfolio Learning and Adult Literacy: Five Years of Development and Demonstration, 2000–2005* (PLA Centre, 2005).

FINAL OBSERVATIONS

In CCL's first annual report on PSE in Canada, *Canadian Post-secondary Education: A Positive Record – An Uncertain Future*, we articulated the reasons for which uncertainty clouds the future contributions that the PSE sector may make to the country's economic and social goals.

Despite the myriad strengths of our individual post-secondary institutions, and notwithstanding the fine attributes and commitment demonstrated by our PSE educators over many years, it was the absence of clear pan-Canadian goals, measures of achievement of those goals, and cohesion among facets of PSE that led CCL to express its reservations about the future.

At approximately the same time as CCL released its report, the first national review of PSE in the United States was circulated.¹ The Spellings Commission expressed alarm about the capacity to compete internationally through its post-secondary sector. It evoked the possibility of the U.S. falling behind economically unless it developed a complete and robust national strategy. In its preamble, the Commission stated that the sector "needs to improve in dramatic ways The sector's past attainments have led our nation to unwarranted complacency about its future Other countries are now educating their citizens to more advanced levels than we are, passing us by."

To put into perspective the divergence between U.S. anxiety and apparent Canadian equanimity over the future effectiveness and efficiency of our respective PSE sectors, we note that U.S. productivity and per capita GDP are much higher than Canada's and that their productivity is increasing at much faster rates; that the U.S. is the world's highest spender on PSE; that the U.S. is the world leader in the research and development that drives innovation and productivity; and that U.S. universities dominate any world ranking of foremost post-secondary institutions.

Given these divergences, all favourable to the U.S., should Canada be complacent when our southern competitor is apprehensive?

The Canadian Council on Learning's 2006 report on PSE set out to analyze the current state of tertiary education countrywide. It used eight common goals of PSE derived from the strategic plans developed by the provinces and territories. The background question driving us on was the need to assess the extent to which the sector was enabling the country to achieve economic and social objectives.

CCL found two principal differences between Canada's approach and that found internationally. First, other countries—whether unitary or federal states, or even multinational entities like the European Union—have developed robust national systems that enable them to make policy and planning decisions on PSE based on adequate information. Second, these countries have developed, or are now developing, national agendas and strategies for PSE. Canada risks falling behind because we have failed to develop the necessary tools and mechanisms to maximize efficiencies and benefits—not because our institutions and educators are less able or accountable.

In 2006, CCL's report on PSE outlined the kinds of information that would be required to allow decision-makers to discern optimal courses of action. This year's report sets out a detailed data strategy that Canada needs and identifies the types of benchmarks and targets that should be used to monitor and guide pan-Canadian progress.

This year's report also reflects on the need for and nature of a pan-Canadian PSE strategy. The report contains examples to illustrate mechanisms that, in conjunction with existing elements across the country, could be used as a platform to build pan-Canadian approaches. CCL's work is intended to serve as a starting point for the development of such a framework by leaders throughout the country.

Taken together, the proposed PSE information system and the examination of pan-Canadian approaches for the sector represent strategies for success, and hence the title of this report. These strategies offer practical means by which Canada can move from diagnosis to deed, from consideration of strengths and deficiencies to actions that will move the yardsticks, such that Canadians benefit fully from the magnificent promise of post-secondary education.

A perennial question about the organization of PSE in Canada is whether we need any national strategy. Surely, just because others have established national systems, we need not mimic any other country? Certainly, our decentralized proclivity has shown its advantages. These issues have been addressed directly in Part IV, "Toward a pan-Canadian Framework for PSE."

¹ U.S. Department of Education. *A test of leadership: Charting the Future of U.S. Higher Education. A Report of the Commission Appointed by Secretary of Education Margaret Spellings* (September 2006).

FINAL OBSERVATIONS

In modern societies, the links are powerful between education and all aspects of life. On what conditions hinges the viability of a political, social and cultural entity—of a country? The first is undeniably the security of its citizens. Yet, everyday security is clearly related to social cohesion—a sense of common purpose and a sense of belonging. Social cohesion in turn is strongly linked to educational success of individuals and societies, as is plainly demonstrated throughout the work of CCL and is particularly evident as a result of PSE.

A second condition for long-term national viability is standard of living—which encompasses well-being and quality of life. All these are supported by the productivity of individuals, of enterprises and of the population as a whole. Improved productivity in turn is recognized to be most dependent on our ability to improve through a better educated, highly skilled, creative and innovative workforce. In other words, these attributes are directly linked to PSE in its broadest sense, which includes the development of skills, training, education, innovation and creativity after secondary school.

A third condition of national viability is equality of opportunity—among regions, generations, genders, income groups and ethnic groups. Failure to maintain equality of opportunity that is perceived as reasonable leads to disruption of the consensus on which a nation-state depends. Education is acknowledged as a great equalizer, making access to PSE critical to national interest.

PSE is related to aspects of life that most profoundly affect our lives. Its impact is national, in that its character, robustness and organization are linked to the very notion of the collective to which we all belong. If we wish to retain or enhance those attributes that define a modern country, all of which cross regional and provincial boundaries, surely we must arrange the PSE sector accordingly.

CCL believes that Canada's partners in PSE can achieve this while fully respecting jurisdictional arrangements and competencies.

Working together, we would lift the clouds of uncertainty hovering over the capacity of the tertiary education sector and help Canadians realize their collective aspirations.

Future directions

Post-secondary Education in Canada: Strategies for Success is CCL's second annual report on the state of PSE. Subsequent reports will update the key data and analysis contained in this report in order to monitor progress over time. The next report, scheduled to be released in fall 2008, will explore in greater detail key PSE priorities to enrich further the national dialogue on strategies for success.

- Association of Universities and Colleges of Canada (2007). *Trends in higher education: Volume I – Enrolment*: Ottawa.
- Auriol, L. (2007). *Labour-Market Characteristics and International Mobility of Doctorate Holders: Results for Seven Countries*. STI Working Paper 2007/2: Paris.
- Barrington Research Group. (2005). *Best Practices in Prior Learning Assessment and Recognition (PLAR): Final Report*: Calgary.
- Belanger, A., Berthelot, J.M., Guimond, E, Houle, C. (2006). *A Head to Head Comparison of Two Generic Health Status Measures in the Household Population: McMaster Health Utilities Index (Mark 3) and the EQ-5D*. Statistics Canada: Unpublished Paper: Ottawa.
- Berger, J., A. Motte, and A. Parkin. (2007). *The Price of Knowledge: Access and Student Finance in Canada – Third Edition*. Canada Millennium Scholarship Foundation: Montreal.
- Berkhadnia, B. (2004). *Credit Accumulation and Transfer, and the Bologna Process: an Overview*. Higher Education Policy Institute: Oxford.
- Cameron, D.M. (2004). *Collaborative Federalism and Post-secondary Education: Be Careful What You Wish For*. John Deutsch Institute for the Study of Economic Policy: Kingston.
- Canada Millennium Scholarship Foundation. (2007). *The Class of 2003: High School Follow-Up Survey*: Montreal.
- Canadian Council on Learning. (2005). "Good news: Canada's high-school dropout rates are falling," *Lessons in Learning*: Ottawa. Available at: www.ccl-cca.ca/CCL/Reports/LessonsInLearning.
- Canadian Council on Learning. (2006). "Apprenticeship training in Canada," *Lessons in Learning*: Ottawa. Available at: www.ccl-cca.ca/CCL/Reports/LessonsInLearning.
- Canadian Council on Learning. (2006). *Canadian Post-secondary Education: A Positive Record – An Uncertain Future*: Ottawa. Available at www.ccl-cca.ca/pse.
- Canadian Council on Learning. (2007). *State of Learning in Canada: No Time for Complacency*: Ottawa. Available at: www.ccl-cca.ca/solr.
- Canadian Council on Learning. (2006). "Understanding the need for targeted workplace learning strategies". *Lessons in Learning*: Ottawa. Available at: www.ccl-cca.ca/CCL/Reports/LessonsInLearning.
- Canadian Council on Learning. (2007). *Composite Learning Index*. Ottawa. Available at www.ccl-cca.ca/cli.
- Charpentier, M., C. Lafrance, and G. Paquette. (2006). *International e-learning strategies: Key findings relevant to the Canadian context*. Unpublished paper commissioned by the Canadian Council on Learning: Ottawa.
- Citizenship and Immigration Canada. (2006). *Facts and Figures 2005*: Ottawa.
- Coulombe, S., Tremblay, J.F., and Marchand, S. (2004). *Literacy scores, human capital and growth across fourteen OECD countries*. Statistics Canada, Catalogue N°. 89-552-MIE: Ottawa.
- Council of Canadian Academies. (2006). *The State of Science and Technology in Canada*: Ottawa.
- Council of Ministers of Education, Canada. (1999). *A Report on Public Expectations of Post-secondary Education in Canada*: Toronto.
- Council of Ministers of Education, Canada and Statistics Canada. (2006). *Education indicators in Canada: Report of the Pan-Canadian Education Indicators Program*. Canadian Education Statistics Council. Catalogue N° 81-582-XIE: Ottawa.
- Council of Ontario Universities. (2007). *Ontario universities—2007 Resource document*: Toronto.
- Council of the Federation. (2006). *Discussion Guide: The Future of Post-secondary Education and Skills Training in Canada*. Document, prepared for Competing for Tomorrow: A Post-secondary Education and Skills Summit: Ottawa.
- De Broucker, P. and Darcy Hango. (2007). *The Changing Learner Profile*. A Background Paper for the Canadian Council on Learning. *Forthcoming*. Statistics Canada, Centre for Education Statistics: Ottawa.
- Department of Finance Canada. *Federal Budget 2007: Aspire to a Stronger, Safer, Better Canada* (Ottawa: March 19, 2007).
- Eaton, J.S. (2006). *An Overview of U.S. Accreditation*. Council for Higher Education Accreditation: Washington D.C.
- Educational Policy Institute. (2007). *Quality measurement, quality assurance and quality assessment. Current practices and next steps in Canada*. Unpublished paper prepared for the Canadian Council on Learning: Toronto.
- Frenette, M. and Morissette, R. (2003). *Will they ever converge? Earnings of immigrant and Canadian-born workers over the last two decades*. Analytical Studies Branch Research Paper Series, N° 215, Catalogue N° 11F0019MIE, Statistics Canada: Ottawa.
- Frenette, Marc. (2007). *Why Are Youth from Lower-income Families Less Likely to Attend University? Evidence from Academic Abilities, Parental Influences, and Financial Constraints*. Analytical Studies Branch Research Paper Series, Catalogue N°. 11F0019MIE—N° 295, Statistics Canada: Ottawa.
- Grayson, J. Paul and Kyle Grayson. (2003). *Research on Retention and Attrition*. Canada Millennium Scholarship Foundation: Montreal.

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STRATEGIES FOR SUCCESS

Higher Education Quality Council of Ontario. (2006). *Priorities and research agenda for the Higher Education Quality Council of Ontario: a discussion paper*. Toronto.

Hudson, L. and Andersson, D. (2006). "Measuring the social outcomes of learning: OECD Network B's Role and Perspective." Proceedings of the Copenhagen symposium: Measuring the effects of education on health and civic engagement: Copenhagen.

Industry Canada. Mobilizing Science and Technology to Canada's Advantage (Ottawa: Government of Canada, May 2007).

Ischinger, B. (2007). *Post-Secondary Education: The Challenges Ahead*. Higher Education in Federations Conference. Ottawa.

King, D. (2004). "Scientific Impact of Nations". *Nature*, Vol. 430.

Lambert, M., et al. (2004). *Who pursues postsecondary education, who leaves and why: Results from the Youth in Transition Survey*. Human Resources and Skills Development Canada and Statistics Canada, Culture, Tourism and the Centre for Education Statistics, Catalogue No 81-595-MIE2004026: Ottawa.

Lapointe, M., Dunn, K., Tremblay-Côté, N., Bergeron, L.P., and Ignaczak, L. (2006). *Looking ahead: A 10-year outlook for the Canadian labour market (2006–2015)*: Ottawa.

Livingstone, D.W. (1999). "Exploring the iceberg of adult learning: findings of the first Canadian survey of informal learning practices," *Canadian Journal for the Study of Adult Education*, vol. 13 (2): Toronto.

Livingstone, D.W. and Myers, Douglas. (2007). "'I might be overqualified': personal perspectives and national survey findings on Prior Learning and Assessment Recognition in Canada," *Journal of Adult and Continuing Education*: U.K.

Mackenzie, Hugh. (2004). *Funding Postsecondary Education in Ontario: Beyond the Path of Least Resistance*. Ontario Coalition for Postsecondary Education: Ottawa.

Mendelson, Michael. (2006). *Aboriginal Peoples and Post-secondary Education*. Caledon Institute of Social Policy: Ottawa.

Myers, Douglas. (2005). "Access, innovation and excellence in graduate professional programs: a Canadian example". *The Journal of Continuing Higher Education*: U.S.

Myers, K. and P. De Broucker. (2006). *Too Many Left Behind: Canada's Adult Education and Training System*. Canadian Policy Research Networks. Research Report W34: Ottawa.

Organisation for Economic Co-operation and Development. (2005). *Education at a Glance*: Paris.

Organisation for Economic Co-operation and Development. (2007). *Factbook 2007*: Paris.

Organisation for Economic Co-operation and Development. (2006). *Society at a Glance: OECD social indicators*: Paris.

Organisation for Economic Co-operation and Development. (2005). *E-Learning in Tertiary Education: Where Do We Stand?* Paris.

Orton, L. (2003). *A new understanding of post-secondary education in Canada: A discussion*. Statistics Canada, Catalogue no. 81-595-MIE No 011: Ottawa.

Oldford, S.A. (2006). *Exploring options for institutional accreditation in Canadian post-secondary education*. School of public administration. University of Victoria: Victoria B.C.

Peters, V. (2004). *Working and Training: First Results of the 2003 Adult Education and Training Survey*. Statistics Canada, Education Skills and Learning Research Papers, Catalogue No 81-595-MIE2004015: Ottawa.

Plant, G. (2007). *Campus 2020: Thinking Ahead: The Report*. Access & Excellence: The Campus 2020 Plan for British Columbia's Post-Secondary Education System: British Columbia.

Polanyi, M. and Karen M. Andres. (2003). *Deliberative Democracy: An Emerging Determinant of Health and Well-Being?* Canadian Social Welfare Policy Conference: Ottawa.

Public Health Agency of Canada (1999). *Toward a Healthy Future: Second Report on the Health of Canadians*: Ottawa.

Rahman A., J. Situ, & V. Jimmo. (2005). *Participation in Postsecondary Education: Evidence from the survey of Labour and Income Dynamics*. Statistics Canada, Catalogue No 81-595-MIE, No 036: Ottawa.

Rae, B. (2005). *Ontario: A Leader in Learning*. Government of Ontario: Toronto.

Riddell, Craig. (2006) *The Impact of Education on Economic and Social Outcomes: An Overview of Recent Advances in Economics*. Canadian Policy Research Network: Ottawa.

Saskatchewan Council for Admissions and Transfer (SaskCAT), (Saskatchewan: 2007). www.saskcat.ca/faq/

Statistics Canada and OECD (2005). *Learning a Living: First Results of the Adult Literacy and Life Skills Survey*. Ottawa and Paris.

Statistics Canada. (2005). *Longitudinal Survey of Immigrants to Canada Progress and Challenges of New Immigrants in the Workforce*. Catalogue N° 89-615-XIE: Ottawa.

Sussman, D. (2002). "Barriers to job-related training," *Perspectives on Labour and Income*, Vol. 3, N° 3. Statistics Canada, Catalogue N° 75-001-XIE: Ottawa.

Toyne, P. (1979). *Educational Credit Transfer: A Feasibility Study*. DES: London.

United Nations. (2003). *Manual for the Development of a System of Criminal Justice Statistics*. Department of Economic and Social Affairs Statistics Division, Studies in methods, Series F N° 89: New York.

U.S. Department of Education. (2006). *A test of leadership: Charting the Future of U.S. Higher Education*. A Report of the Commission Appointed by Secretary of Education Margaret Spellings: Washington, D.C.

Usher, A. and Junor, S. (2004). *The Price of Knowledge: Access and Student Finance in Canada*. Canada Millennium Scholarship Foundation: Montreal.

Van Vught, F.A. and D.F. Westerheijden. (1994). "Towards a general model of quality assessment in higher education," *Higher Education*, 28(3), pp. 355-371.

Wihak, C. (2006). *State of the Field Review: Prior Learning Assessment and Recognition*. Submitted to the Canadian Council on Learning: Ottawa. Available at: <http://www.ccl-cca.ca/CCL/Reports/StateofTheFieldReview/>.

Zakos, Paul. (2007). ALFICan (Adult Learner Friendly Institutions Canada) Final Report: Tyendinaga Mohawk Territory. Available at <http://web.mac.com/alfican>

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