

CANADIAN POST-SECONDARY EDUCATION
A Positive Record – An Uncertain Future



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MESSAGE FROM THE PRESIDENT AND CEO



Paul Cappon
President and CEO

The Canadian Council on Learning's first annual report on post-secondary education (PSE) in Canada is also the first report that examines post-secondary education in Canada from a nationwide perspective. This singular fact is indicative of the challenges that Canada faces to advance national goals through post-secondary education (PSE).

This report is subtitled *A Positive Record – An Uncertain Future*. A Positive Record reflects Canada's achievements in providing access to PSE for large proportions of the population; the skills of Canadian educators in teaching and research; and the contributions that PSE makes to Canadian communities. *An Uncertain Future* underscores the absence of a national PSE focus, agenda or strategy in Canada.

We believe that this first annual CCL report on PSE in Canada is rich in information and analysis. I believe also that it is my responsibility to set out clearly the conclusions that I draw from the detailed information in this paper. However, mine is only one perspective. I invite readers to draw their own conclusions from the analysis. In this way, an informed national dialogue can occur on a subject that is crucial to our individual and collective futures.

The absence of a pan-Canadian focus explains our country's lack of national goals and benchmarks for PSE in accord with social and economic interests—and the consequent failure to develop measurements against which to assess our progress in post-secondary education.

Does all this matter? If the opportunity for Canadians to study is increasing, that surely constitutes improvement. If we continue to spend large amounts of public and private funds on high-quality research and teaching, this also reflects progress. What, then, the need for a national focus?

During the two generations following World War II, Canadians could take comfort from the fact that Canada was well ahead of most other advanced industrial countries that are now members of the Organisation for Economic Co-operation and Development (OECD). Opportunity to study was expanding more rapidly in North America than elsewhere and Canada became recognized as a world leader in producing a highly educated population.

For most of the 20th century, education was primarily a local matter. Foreign competition in PSE was limited. Few countries had coherent national strategies for tertiary education. What is now the European Union (EU) was even less integrated educationally and otherwise than Canadian provinces.

Progressively, and at an increasing tempo—particularly over the past 30 years—this reality has changed. Education—especially at the post-secondary level—is now global. International competition is fierce. Almost all countries have aggressive national strategies for PSE systems to advance their national interests, especially in terms of innovation, productivity and economic growth. The EU progressed from a collection of six Common Market states whose borders could take hours to cross, to an increasingly integrated entity with a collective European strategy and common benchmarks for PSE and skills development.

While others have been active, Canada has neglected to define and articulate national goals and corresponding benchmarks. The previously comfortable status quo is now out of sync with the 21st century reality.

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.

The future of PSE in Canada is uncertain because it has none of these three essential elements. Consequently, and as this report illustrates, given the rapidly changing circumstances our country faces, it appears unlikely that learners will optimize the individual and community benefits from their educational experience. As well, Canada will not have the highly qualified workforce needed to realize its economic promise fully. Nor, without the development of made-in-Canada quality assurance processes, can Canadian content, language, culture and, ultimately, identity be assured.

This report identifies a number of provisional preferences that could constitute national objectives for PSE. These apparent, tentative preferences, while not clearly articulated nationally, emerge logically from strategic plans of provincial and territorial departments of advanced education and training.

A national dialogue about these pan-Canadian preferences and priorities is essential if Canadians want their country to continue to rank high in PSE achievement and if post-secondary institutions are to enable Canadians to fulfil the individual and collective goals to which they aspire.

It is our intent that this report be a useful resource to help Canadians, their governments, and individuals and organizations involved in post-secondary education consider critical issues regarding the future direction of PSE in Canada.

A handwritten signature in dark ink that reads "Paul Cappon". The signature is written in a cursive style.

Paul Cappon
President and CEO

FOREWORD: A POSITIVE RECORD – AN UNCERTAIN FUTURE

A quintessential Canadian success story

Canada's post-secondary institutions made major contributions to our country's social progress and economic success in the last half of the 20th century. In the span of several decades, Canada evolved from a country where an advanced education was reserved for the society's elite to one that produces one of the world's best-educated populations. By the turn of the century, Canada boasted the second-highest number of post-secondary educated citizens per capita of any country—a comparative advantage in a global knowledge economy. Since knowledge is now the currency of the economy, improved post-secondary outcomes increase a country's ability to develop the skilled human resources and conduct the innovative research it needs to remain productive and competitive.

Canada's past performance is a remarkable achievement, considering that in the 19th century, just two percent of Canadian 20- to 24-year-olds went to university—usually to join the clergy, or become a doctor or lawyer. Even by the early 1940s, that number had only doubled to four percent. It wasn't until the post-war period, when the federal government provided educational opportunities to returning servicemen after World War II and began investing heavily in post-secondary education to accommodate the Baby Boom population that enrolment rates swelled. There are now close to 100 public universities and roughly 200 public community colleges, degree-granting and other institutions all across the country. Today, 44% of Canadians possess post-secondary credentials.

Much of Canada's success is attributable to governments' extensive investments in post-secondary education. Over the past 10 years, Canada has ranked in the top three internationally for public investment in post-secondary education institutions (PSIs). Collectively, the provincial, territorial and federal governments invested roughly \$29 billion in 2004. A number of provinces have recently increased their expenditures on post-secondary education to ensure that PSIs are better able to respond to growing public demand. The creation of innovative research bodies and the infusion of new federal funds in national granting councils over the past decade have also enabled Canada's universities and colleges to pursue an ambitious research agenda—the very heart of academic life.

SHORTCOMINGS

In spite of this solid foundation and the impressive track record of Canada's post-secondary institutions, we cannot be complacent. The PSE sector's capacity to sustain its present progress is strained at the very time the world is placing a premium on higher education. Unprecedented demand for post-secondary graduates in the job market, coupled with an aging PSE workforce and deteriorating infrastructure, limit post-secondary institutions' abilities to meet Canadian economic needs and social expectations.

At the moment, there are few means to gauge just how well our PSIs are responding to Canada's shifting social and economic needs or how post-secondary education in Canada compares with higher education systems in other countries facing similar challenges. Nor are there sufficient data to assess whether Canadians are fully benefitting from the money they and their governments spend on post-secondary education.

There is a critical shortage of reliable research on the state of PSE in this country, making it difficult to determine whether PSE effectively prepares Canadians for the challenges and opportunities posed by the knowledge economy, if PSE provides value for money, or how Canada's PSE system measures up against others elsewhere in the world. Compounding these issues is the fact that, despite widespread agreement that PSE makes a vital contribution to economic growth and social cohesion, unlike most developed countries, Canada does not have a harmonized set of national objectives and targets for post-secondary education.

SERIOUS COMPETITORS

Most other leading industrialized countries have established national goals and benchmarks for PSE: they recognize that competitiveness of their economy and welfare of their societies in an aggressive global economy depends, to an unprecedented degree, on the success of their post-secondary education sector. The European Union's 1999 Bologna Declaration clearly illustrates this new philosophy.

The Bologna Declaration is a pledge by European Union member countries to reform their higher education

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systems in a convergent way while ensuring the fundamental principles of autonomy and diversity are respected. It reflects a commitment to find common European answers to common PSE problems. More than just a political statement, it is a binding agreement among EU members to develop and implement a common higher education framework to eliminate obstacles to student mobility and increase access to—and quality of—post-secondary education.

The EU is not alone in taking action. Numerous jurisdictions have already developed and begun implementing national strategies to strengthen PSE. Lessons learned from these countries reinforce that money, alone, is not enough to respond to growing pressures on post-secondary education. The efficiency and effectiveness of PSE must be improved to keep pace with the relentless rate of change in the world around us.

This report draws heavily on the European situation to highlight the successes and accomplishments these sovereign states, which have long traditions and well-established PSE systems, can achieve jointly when there is political will to work collaboratively. Conversely, in Canada, we have yet to meet the challenge of establishing common goals and objectives and to agree on common strategies that would best serve the interest of individuals and of the country.

Serious competition and important comparisons for Canada also emerge from the Asian and American experiences. Countries like Japan, South Korea and Singapore are already strong performers both in economic development and in their success at post-secondary education, and China and India are rapidly expanding both their PSE systems and economies.

The United States claims our attention because of the large number of high-quality PSE institutions that it possesses, its leadership in many aspects of research and innovation, and its ongoing attractiveness to foreign students. In any international ranking of universities, American institutions—both public and private—dominate the top 100. This high ranking attracts students, including Canadians, because it promises excellence in teaching and learning. It also attracts the research funding that contributes so forcefully to innovation and productivity.

The United States is confronted with many of the same realities and challenges that face Canada's PSE sector. The United States, which also has a federal system, has recently felt the need to launch a major review of post-secondary education. The Commission on the Future of Higher Education issued a draft report in August 2006 which recommended the development of "a national strategy" or a "comprehensive plan [that] should include better integration of policy, funding and accountability between post-secondary education, adult education, vocational education, and workforce development and training programs."¹

To the extent possible, this report draws on U.S. data to highlight the respective positions of the U.S. and Canadian PSE sectors on key issues. However, given the pan-Canadian focus of CCL's report, the many significant developments at the state level in the U.S. are not featured.

CHANGING WORLD

Meaningful and measurable progress in making Canada's PSE more responsive, coherent and cohesive is essential if Canada is to remain a social and economic leader in the world community.

Long gone are the days when a post-secondary education was the preserve of the parish priest, dentist or judge. Over the past six decades, Canada and the world have witnessed a dramatic transformation in knowledge generation that permeates all aspects of society—especially the workplace. With the emergence of the knowledge-based economy, these trends are accelerating rapidly. The value and necessity of post-secondary education have reached new heights. In a world of just-in-time production, businesses need just-in-time skills that contribute to the development, transfer and commercialization of new discoveries. Advanced studies are fast becoming a prerequisite for employment, with up to 70% of new and replacement jobs now demanding post-secondary education—far exceeding the number of PSE graduates available in the Canadian labour market.

Post-secondary institutions are increasingly challenged to turn out enough highly educated workers. The rising number of students means increased demand for space, resources and instructors. Aside from meeting external

¹ Commission Draft Report, Aug. 9, 2006. p.24.

workplace demands, one of the greatest challenges for PSIs is to provide an adequate supply of professors within their own institutions, as many professors from the baby boom generation start to retire.

Of equal concern, Canadians' access to post-secondary learning opportunities is uneven, with PSE attendance directly linked to individual financial status and geographic location. In addition, Aboriginal Canadians continue to face significant challenges in pursuing post-secondary studies.

The issue is not that Canadians are unaware of the importance of advanced education. A 2006 public opinion poll commissioned by the Canadian Council on Learning found that 61% believe that acquiring a college or university education is much more important compared to 10 years ago and a further 17% say it is somewhat more important. As well, 59% of Canadians feel many people who are qualified do not have the opportunity to attend post-secondary institutions in this country. The primary reason for this discrepancy is perceived to be affordability: 76% believe that low-income students have less opportunity than higher income Canadians.

THE STAKES ARE HIGH

If the PSE sector cannot keep pace with these developments and put higher studies within reach of all qualified candidates, Canadians will be unable to fulfil their potential and Canada will not have the talented workforce it needs to succeed in a fast-changing economy.

For **individuals**, higher education can mean the difference between a paycheque and unemployment, between prosperity and poverty. Just 6% of new jobs are available to people with less than a high-school education, and many of these jobs are at minimum wage. In contrast, those who acquire trade certificates, diplomas and degrees are rewarded financially. The average university graduate will earn 40% more than the average high-school graduate, or roughly \$1 million over a lifetime. Aside from more money, people with post-secondary credentials also enjoy better health and greater longevity.

The stakes are also high for Canadian **communities**, which benefit directly from more highly educated residents. More than just enabling Canadians to achieve our economic potential, PSE is a means by which we better

understand and interact with the world around us, fulfil our roles as citizens in society and lead more satisfying lives.

Research has found a strong correlation between post-secondary education and higher levels of volunteerism and charitable giving, as well as lower crime rates and reduced use of the health-care system. In a country as multiculturally complex as Canada, an added benefit of an educated population is a greater appreciation of diversity, which results in stronger social cohesion and increased inclusion. Research also shows a direct link between higher education and voting, underscoring education's contribution to the health of our democracy.

The stakes are especially high for Canada's **economy**. Canadian employers need educated and productive workers who can respond to lightning-fast changes in the global economy—an economy driven by an explosion of new knowledge and information as well as rapid technological innovation. Eight of the top 10 occupations with the more rapid employment growth from 1990 to 2003 required post-secondary qualifications, many of them in the natural and applied sciences. Even though 44% of working-age Canadians have post-secondary credentials, nearly as many (42%) lack the necessary literacy and numeracy skills to cope in a knowledge society and information economy. Skills upgrading and training are key to boost not only these workers' productivity and incomes, but also their employers' competitiveness. These are critical issues, given Canada's widening productivity gap with its major trading partners.

Another major contributor to productivity is research and development (R&D), an area in which PSE institutions play a vital role. Science is the foundation of technological innovation, the driving force in today's information society. Despite Canada's early lead in burgeoning fields such as biotechnology, Canada is now falling behind its major competitors.

Canada lags many of its trading partners in producing an adequate number of PhD graduates, particularly in the math and science faculties. Canada also ranks behind Sweden, Japan, U.S., Norway, Australia and France in terms of researchers and R&D personnel. In 2005, Canada ranked 15th among 20 OECD countries for gross expenditures on R&D. Canada depends more on its higher

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education institutions for R&D than other OECD countries, with over 35% of research in this country carried out on Canadian university and college campuses.

Further fuelling these problems is the emergence of economic giants, such as China and India, which have hopped from the agrarian to information age in the span of a generation. Considering the colossal size of their labour markets and low labour costs, as well as the fact that these countries turn out vast numbers of highly educated workers—particularly scientists and engineers—Canada’s productivity and competitiveness pressures will escalate.

WHAT CANADIANS EXPECT

Canadians clearly view higher education as a determining factor in their families’ and the country’s future prosperity. Yet, there is no information on which to judge whether PSE in this country meets standards that will advance these interests.

Canadians say they want organizations and governments to work together to achieve higher education objectives in the national interest. Yet there is little coordination and cohesion among the more than a dozen different educational systems across the country to achieve these ends.

Canadians want their country to continue to rank high among developed countries in PSE achievement. Yet Canada has not articulated pan-Canadian objectives for PSE other than one benchmark in the area of research and development, nor has it given itself the means to evaluate the performance of the sector—preliminary steps that would demonstrate PSE is, in fact, a national priority. **Canada currently has no means to establish the national PSE objectives to which it aspires. It has not even reached the first step—the ongoing evaluation of national progress—that would indicate our seriousness about this pan-Canadian priority.**

If Canada is serious about improving educational outcomes for Canadians to stimulate economic growth, increase Canada’s international competitiveness and enhance social cohesion, it must develop and utilize appropriate tools to expedite this task.

WHY WE MUST ACT

While Canada currently enjoys relatively high participation and educational attainment rates, for reasons outlined in this report, future success is not guaranteed. Other countries are moving forward to respond to a fast-changing global environment. Canada cannot afford to stand still or it risks falling behind.

In today’s world of new competitors and challenges, Canada’s education advantage is quickly diminishing. The right choices must be made now to ensure our country not only sustains its current success but also continues to excel in the 21st century.

If Canada is to keep up and even get ahead of its competitors, it must develop a set of clear and consistent goals, targets and benchmarks for post-secondary education—for the country as a whole. These must respect jurisdictions and increase cohesiveness, capacity, responsiveness and effectiveness of post-secondary education—all key to improving the sector’s ability to empower Canadians to succeed in a knowledge-based economy and information society.

The effectiveness of Canadian taxpayers’ investments in PSE could be increased significantly if partners in education—governments, post-secondary institutions, employers, educators and learners—work together to advance common goals for training, education and research across Canada.

As important as it is to determine *what we want to do as a country*, it is equally vital to know whether we are achieving our objectives.

There will be those who question the importance of post-secondary education and training relative to other societal priorities, or who suggest that reaching consensus across jurisdictions is an impossible dream. They need only to see how far Canada’s PSE sector has come in mere decades in helping democratize society and propel social and economic progress to appreciate what is possible. As we have witnessed with the disappearance of an era when post-secondary education was the exclusive domain of the elite, even the previously inconceivable can quickly become the inevitable.

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EXECUTIVE SUMMARY

Post-secondary education is inextricably linked with Canadians' standard of living and quality of life. It affects, and is affected by, the state of the labour market, the level of productivity, innovation and competitiveness of Canada's economy, as well as societal cohesion and equity.

There is solid consensus on the central role of post-secondary education (PSE) in the modern world to provide sufficient human capital through a skilled and adaptable labour force, and to spur innovation and productivity through research and development. Both these dimensions are understood to be critical components to compete and succeed in an increasingly knowledge-driven, global economy, and a more diverse and complex society. There is also broad agreement that PSE plays a crucial role in improving social cohesion and inclusion. Given the changing face of Canada, post-secondary education is much more essential to society than at any time in the past.

However, unlike most advanced industrialized countries, Canada does not have a harmonized set of national objectives and targets for post-secondary education despite the pivotal role PSE plays in advancing the national interest.

This report aims to inform Canadians on the extent to which Canada's post-secondary education sector is contributing to Canadians' social and economic objectives, its ability to respond to a fast-changing global environment, and how Canada's approach to higher education compares with other leading developed countries.

SYNTHESIS OF FINDINGS

Analysis of currently available national and international data and research has led to the following findings:

- There are anticipated labour-market shortages in key professions and occupations (health professions and skilled trades, for example) that require PSE. Slowing labour-force growth in Canada, coupled with the increasing need for a knowledgeable, adaptable and flexible workforce dictates that priority attention be given to how post-secondary education can help respond to these challenges.
- Canada's overall R&D intensity continues to rank 15th among OECD member countries, despite increased investments over the last decade. The role of PSE institutions in R&D is much greater in Canada than in most other countries.
- Access to, and benefits of, post-secondary education are not equally distributed among Canadians—at great cost to individuals and the economy.
- Despite high levels of educational attainment, two of every five adults—or 9 million Canadians—have literacy levels below the minimum needed in today's economy and society.
- There is significant unmet need for job-related education and training in Canada.
- The post-secondary sector is still largely designed to respond to the needs of traditional, younger

learners. The needs of many adult learners for more flexible, affordable and responsive methods of accessing PSE must be addressed.

- Canada lacks mechanisms at the national level to ensure coherence, coordination and effectiveness on key priorities such as quality, access, mobility and responsiveness. As a result, it is unlikely that Canada can optimize benefits to learners, attain pan-Canadian social and economic priorities, or support a distinctively Canadian culture and identity.

CONSTRAINTS

The dearth of reliable data has hindered the Canadian Council on Learning's ability to report fully on the state of PSE in Canada. This shortfall, in and of itself, is an indication that Canada lacks the coordination and cohesion essential to powerful and successful post-secondary education.

The data required to track Canada's performance and progress in PSE are incomplete and scattered, are updated on different timetables and use different definitions. The analysis included in this paper identifies a number of key data gaps that CCL believes can and should be addressed as a matter of priority. By filling these data gaps, Canada can gain insight into PSE's challenges and opportunities in the 21st century and develop appropriate responses.

EXECUTIVE SUMMARY

KEY PRIORITIES

CCL's analysis points to several issues that merit national focus. Three activities should be pursued as matters of priority to provide a pan-Canadian framework for post-secondary education in Canada.

There is a need to:

1. Articulate a set of **explicit, well-defined goals and objectives** for post-secondary education at the national level, cast in terms of what should be achieved through PSE to maximize the overall well-being of Canada and Canadians. These goals should include objectives for pan-Canadian cohesion and coherence that would characterize any national PSE system.
2. Develop a **clear set of indicators and measures** to enable continuous assessment of performance and progress made toward those goals and objectives at the national level. This effort entails 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 allowing for monitoring change over time, and for comparison with other jurisdictions.
3. Establish **mechanisms at the national level** that accomplish the tasks outlined in the first two activities and which tie together Canadian post-secondary education with respect to key priorities such as access, quality, mobility and responsiveness, while recognizing provincial responsibilities and institutional academic autonomy.

In order to move forward on these priorities, Canada must develop adequate information and analysis in the following areas:

- Post-secondary education data need to be improved to ensure consistency and comparability nationally and internationally.
- Focus attention on key policy areas related to participation, persistence and completion rates and patterns particularly aimed at increasing the PSE participation and completion rates of under-represented groups.
- Further analysis and understanding of the apparent paradox between high post-secondary attainment and low literacy rates.

- Work with employers and post-secondary institutions to engage them in effective models of adult education, in light of the need for lifelong learning and the large number of Canadians requiring job-related education and training.
- Identify program priorities to address the needs of adult learners for more flexible, responsive, and affordable lifelong-learning opportunities.
- Enhance our understanding through further analysis of the link between supply and demand in the labour market, with particular attention to the skilled trades and other occupations projected to experience shortages as a result of economic expansion and demographic trends.
- Develop indicators that measure the social benefits of PSE to the well-being of Canadians to demonstrate value over and above considerations of economic growth.
- Work with PSE partners to design concrete processes and mechanisms to facilitate mobility for Canadian learners through a coherent and coordinated national approach to accreditation, credit transfer, credential recognition and prior learning assessment.
- Develop direct measures of quality and effectiveness of PSE in Canada to replace the proxy and subjective indicators currently being used.

NEXT STEPS FOR CCL

This is the first in what will become an annual series of reports on post-secondary education. The second report, to be published in autumn 2007, will update key statistics and indicators. In addition, the second and subsequent reports will address some of the key priorities listed above.

INTRODUCTION

1.1 BACKGROUND

As much as this report is about education, it is equally an educational endeavour. Its purpose is to inform Canadians of the state of post-secondary education (PSE) in this country; how, and how well, post-secondary education is contributing to the overall well-being of Canada and Canadians; and how Canada's approach to PSE compares with that in other advanced industrialized countries by providing an objective, evidence-based review.

In Canada, attention is typically focussed on post-secondary issues at the provincial or territorial levels. There is currently a variety of strategic plans in place in the various provincial and territorial departments. In this report, the Canadian Council on Learning's approach differs, in that it examines PSE from a national perspective to assess progress and performance of common goals and objectives that affect Canadians in every region of the country.

Post-secondary education is closely related to the national standard of living and quality of life. There is solid consensus on the central role of PSE in the modern world to provide sufficient human capital through a skilled, adaptable and mobile labour force; to spur innovation and productivity through research and development;

*The term **post-secondary education** is generally used in this report to refer to academic, technical and vocational courses and programs beyond secondary-school levels and provided by colleges, CEGEPs, university colleges and universities—most of them public, but including some private institutions. Graduates from post-secondary programs receive diplomas, certificates, or undergraduate or graduate degrees.*

and to drive equity and social cohesion. All of these dimensions are critical to compete and succeed in a knowledge-driven, information-based global economy, and an increasingly diverse and complex society.

There is broad agreement that, in this challenging and fast-changing environment, post-secondary education and training are more essential to society than ever before. Canadians' patterns of employment and new career choices, coupled with rising wealth and aspirations, have made the continuation of education beyond the secondary level both a need and an expectation of growing numbers of individual students and families.

Just as the performance of Canada's health-care system is vital to all Canadians, so, too, is the performance of Canada's post-secondary education important to Canada's national interest, as it directly impacts the lives and livelihoods of Canadians across the country. In the same way that a national perspective on health care is informed by data on population health, it is also possible—and desirable—to assess the state of PSE in Canada by reviewing aggregated statistics and indicators that reflect success in achieving higher education's goals and objectives in all parts of the country.

INTRODUCTION

1.2 WHAT THIS REPORT IS NOT

Many Canadians are familiar with publications that rank post-secondary institutions in Canada according to a number of criteria. This report does not attempt to provide rankings. Neither does it provide league tables that compare post-secondary institutions.

This report's purpose is not to point fingers or find fault with PSE practitioners who are making a valiant effort to respond to unprecedented pressures, and who are making tremendous progress in terms of increased participation and attainment rates. Nor does it compare the performance of individual provinces and territories with respect to post-secondary education—although it does contain some statistics organized by province and territory as this is how PSE is organized in Canada.

1.3 WHAT THIS REPORT IS

Recognizing that a high-quality, affordable, accessible and flexible post-secondary education is essential to meet the country's economic and social challenges in the 21st century, **this report examines the performance of post-secondary education in meeting commonly adhered-to goals and objectives as outlined in the strategic plans of various provinces and territories.** In spite of serious data gaps, which reflect the fact that our knowledge base on the state of PSE is very limited, it highlights numerous areas where the PSE system is under duress and in need of attention.

PSE has become the subject of growing interest not only in Canada but also around the world. In the U.S., U.K., Australia and other major developed countries, attention is now focussed on the role PSE can—and should—play to enhance economic and social goals. International organizations such as the United Nations Educational, Scientific and Cultural Organization (UNESCO), the European Union (EU) and the Organisation for Economic Co-operation and Development (OECD) are actively involved in these areas.

In recent years, numerous organizations have gathered and published statistics-based analyses of various dimensions of post-secondary education in Canada. These groups include the Council of Ministers of Education, Canada (CMEC), Statistics Canada, national bodies that represent colleges and universities across Canada such as the Association of Universities and Colleges of Canada (AUCC), the Association of Canadian Community Colleges (ACCC), the Canadian Association of University Teachers (CAUT), and the Canada Millennium Scholarship Foundation (CMSF), and many private and public groups, such as Canadian Policy Research Networks (CPRN), the Conference Board of Canada, the C.D. Howe Institute and others. This review necessarily relies on pre-existing data. It draws upon the work and research of many PSE stakeholders, federal and provincial government departments, ministries and agencies, other countries, as well as the OECD and the EU in an attempt to provide Canadians with an informed perspective on the state of PSE in Canada.

A summary of key numbers that outline the scale and scope of post-secondary education in Canada could form the subject of a major report in and of itself. In fact, the recent release of the pan-Canadian Education Indicators Project by the Canadian Education Statistics Council (a joint body of the CMEC and Statistics Canada) provides a valuable compendium of statistics in the general area of education, including post-secondary.

The remainder of this report attempts to look beyond the general trends in participation and attainment, and present a more comprehensive understanding of how we are doing in Canada—particularly relative to other developed countries—and identify trends and challenges that require attention.

This report is the first in an annual series to be prepared by CCL. It provides a snapshot of PSE in Canada within a broader context of trends over time in participation, attainment and outcomes, and, wherever possible, within an international context.

1.4 LIMITATIONS AND CONSTRAINTS

There remains a wide gap between what we would like to be able to report on and what we are currently able to report on. The ideal report on PSE in Canada would take a set of explicit, clearly defined and measurable goals and objectives and analyze the extent to which they have been achieved by marshalling specifically tailored indicators. It is not possible to do so in this report for three key reasons.

First, national-level data simply do not exist with respect to many key issues. In other cases, some data do exist, but they are not consistently collected or have not been analyzed. Other data suffer from definitional or methodological problems that severely undercut their utility. Still others are collected in ways that do not allow useful comparisons to be made, over time or between jurisdictions. One of the most serious shortcomings of this document is the lack of adequate data on Canada's community colleges; the data they have provided simply have not yet been analyzed. Existing information has been used to the greatest extent possible.

Second, there is no nationally focussed statement of explicit goals and objectives for post-secondary education in Canada. While provinces and territories have developed accountability frameworks in recent years that provide insight into the state of PSE, those frameworks are understandably focussed on particular circumstances and priorities of individual provinces and territories, rather than a Canada-wide perspective. In comparison, many other industrialized countries have not only established such standards for PSE, but are also actively implementing national strategies to strengthen their post-secondary education systems and improve national results.

The third constraint is a "theory" problem. It is possible to demonstrate that post-secondary education is associated or correlated with a number of important outcome variables, such as creating knowledge and contributing to societal development. However, it is much more difficult to make the leap from "correlation" to a solid theory of "causation." One cannot spell out in much detail, or with much confidence, exactly how the complex dynamics of a multitude of interacting factors actually operate in the real world. Much work is being done on such questions, and CCL is pursuing further research as a key part of its organizational mandate. However, the current dearth of necessary data underscores that Canada requires a national approach to data gathering, collection and analysis to fill these gaps.

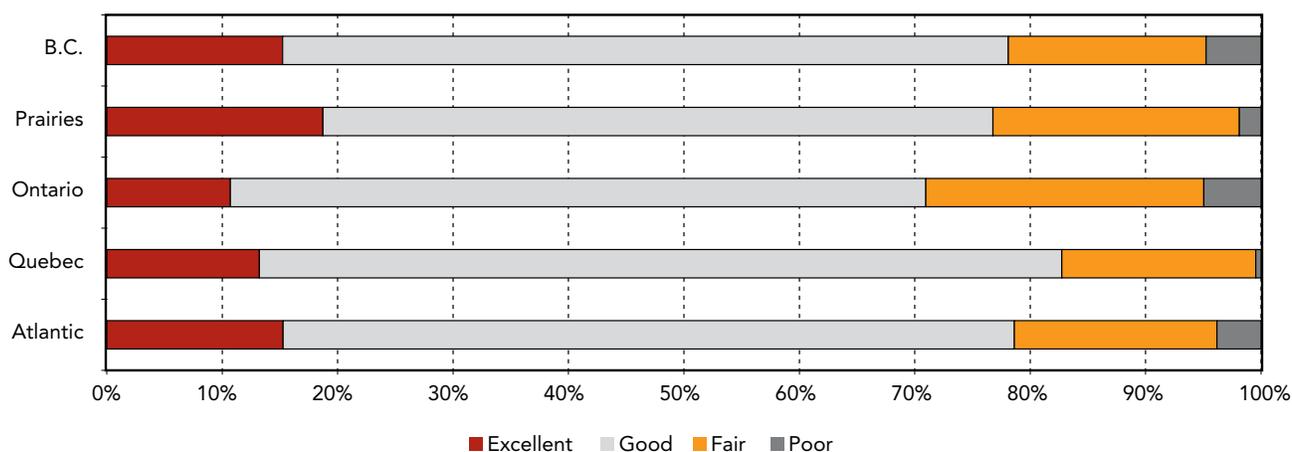
Given these limitations, choices must be made about how to proceed. **We cannot allow the perfect to be the enemy of the possible. Canada does not have the luxury of sitting back and waiting for perfect information, given the 21st century skills and knowledge imperative.**

CCL presents this analysis of Canada's performance and progress in post-secondary education, while clearly recognizing the problems encountered by the lack of an endorsed set of national goals and objectives, and by the limitations of data and theory. This gives us insight into our current situation and helps to identify the necessary next steps to fill the gaps in national data and address other challenges facing PSE.

INTRODUCTION

1.5 VIEWS OF CANADIANS

Regional assessments of performance of universities and colleges CANADIAN ATTITUDES TOWARD PSE



Source: Pacific Issues Partners. *Canadian Attitudes on Post-secondary Education: A Report for the Canadian Council on Learning*. Ottawa: Canadian Council on Learning, 2006.

To gauge Canadians' awareness of and interest in these issues, CCL commissioned a comprehensive and extensive public poll in spring 2006 to collect views on a wide range of post-secondary education topics. The results show that Canadians recognize the value of PSE and are convinced it is more important than it used to be only a decade ago:

Compared to 10 years ago, would you say getting a college or university education is much more important, somewhat more important, somewhat less important, much less important or about the same importance as it was?

Table 1.5.1 **The importance of PSE compared to 10 years ago**

	(%)
Much more important	61
Somewhat more important	17
About the same importance	15
Somewhat less important	5
Much less important	1
DK / NA	1

Source: Pacific Issues Partners. *Canadian Attitudes on Post-secondary Education: A Report for the Canadian Council on Learning*. Ottawa: Canadian Council on Learning, 2006.

The 2,000 respondents were asked to assess the work being done by colleges and universities with respect to a number of dimensions, and gave generally high ratings.

Table 1.5.2 **Colleges and universities performance assessment**

	Excellent	Good	Fair	Poor	DK / NA
Quality education for students	15	60	19	2	4
Ensure students have skills needed to get jobs	10	53	26	6	5
Ensure qualified students able to attend	8	44	33	10	6
Doing world-class research	11	46	24	4	16
Accountable and open about operations	5	42	30	12	11
Ensuring continuing education available	11	52	27	5	5
Responding to community needs	7	47	33	7	8

Source: Pacific Issues Partners. *Canadian Attitudes on Post-secondary Education: A Report for the Canadian Council on Learning*. Ottawa: Canadian Council on Learning, 2006.

1.6 RESULTS AND BENEFITS OF PSE

Participation and attainment trends and expenditure levels provide valuable evidence regarding PSE, but it is not possible to make conclusive statements about PSE quality or benefits simply by assessing its cost. Consequently, there has been increased attention in recent years to questions of results and value achieved through public and private expenditures. Later chapters explore the outcomes in greater detail.

Evidence worldwide clearly demonstrates that investment in post-secondary education pays unequivocal dividends—in terms of standard of living and quality of life through PSE's impact on economic growth and social cohesion, as well as particular benefits for individuals who have had the opportunity to pursue post-secondary education.

One useful summary of public and individual benefits associated with PSE—both economic and social—is

provided in a 1998 document published by the U.S. Institute for Higher Education Policy.

Research in Canada provides evidence that post-secondary education plays an important role in reducing regional economic and social disparities. The studies conclude, “Roughly 50% of the differences in the growth of per capita income, and more than 80% of the relative income levels, can be explained in terms of convergence in the stocks of human capital.”²

A post-secondary education yields economic dividends to individuals who acquire post-secondary education credentials. The research community has calculated a “rate of return”³ for individuals, which helps answer the question of whether spending money to attend PSE—and giving up potential earned income had the individual worked instead of having pursued higher education—is a “good investment.”

Table 1.6.1 **Post-secondary education benefits for individuals and society**

	PUBLIC BENEFITS	INDIVIDUAL BENEFITS
Economic	Increased tax revenues	Higher wages and benefits
	Greater productivity	Employment
	Increased consumption	Higher savings levels
	Increased workforce flexibility	Improved working conditions
	Decreased dependence on government financial support	Personal and professional mobility
Social	Reduced crime rates	Improved health/life expectancy
	Increased charitable giving and volunteering	Improved quality of life for children
	Increased civic engagement	Increased personal status
	Stronger social cohesion/appreciation of diversity	Increased leisure activities/hobbies
	Improved ability to adapt to new and emerging technologies	Better consumer decision-making
	Less reliance on health-care system	Better ability to cope with stress

Source: The Institute for Higher Education Policy. *Reaping the Benefits. Defining the Public and Private Value of Going to College.* (Washington DC). 1998.

² Coulombe, S. & Tremblay, J.F. (2001). Human Capital and Regional Convergence in Canada. *Journal of Economic Studies*, Vol. 28, No. 3, pp. 154-180.

³ Junor S. & Usher A. (2004). *Price of Knowledge. Access and Student Finance in Canada.* Millennium Research Series. Canada Millennium Scholarship Foundation. Canada. The rate of return is usually measured by determining the “internal rate of return” (IRR) associated with an individual’s investment in education. The IRR analyzes the lifetime stream of benefits and costs of education to come up with an annual “return” on education similar to that which permits comparison of investments in human capital with other types of investment. There are generally two types of rate of return discussed: the “private rate of return,” which accrues to the individual and the “total rate of return” which increases the value of the GDP (assuming that an increase in workers’ income reflects an increase in the value of the marginal product of labour) relative to the resource cost of education. p. 323.

INTRODUCTION

Table 1.6.2 **College and university graduate private rates of return in the 1990s⁴**

	RATE OF RETURN
College	15–25%
Male	15–28%
Female	18–26%
University	12–20%
Male	12–17%
Female	16–20%

Source: Boothby D. & Rowe G. (2002). Rate of Return to Education. Human Resources Development Canada. Ottawa, and Vaillancourt F. & Bourdeau-Primeau S. (2001). The Returns to Education in Canada: 1990 and 1995. Centre de recherche et développement économique (CRDE), Université de Montréal. Table Source: Junor S. & Usher A. Price of Knowledge. Access and Student Finance in Canada. Millennium Research Series. Millennium Scholarship Foundation. Canada. 2004.

University graduates represent 16.1% of the population, provide 33% of income tax, and consume 9.1% of government transfers such as employment insurance or social assistance. Those with less than a high-school education represent 19.2% of the population, provide 8.8% of income tax, and consume 35.1% of government transfers.⁵

PSE is also associated with positive social benefits for individuals and society as a whole, including better health outcomes, higher levels of volunteerism and charitable giving, and lower crime rates. CCL's Composite Learning Index reflects a number of these dimensions. A detailed discussion of the social benefits of PSE is found in Chapter 5.

4 Ibid. p. 324, Table 6.X.1.
5 Ibid.

2.1 BACKGROUND

The pressures imposed by a knowledge-based economy and society have motivated many countries to articulate specific goals and objectives for post-secondary education. In most cases, these national exercises are accompanied by the development of performance indicators. This trend is often part of a general shift within the public sector to set measurable goals.

For example, in 1999, European Ministers of Education signed a joint declaration, known as the Bologna Declaration, which emphasizes “the creation of a European area of higher education as a key way to promote citizens’ mobility and employability and the Continent’s overall development.” They committed themselves to fulfilling the objectives set out in the Declaration and pledged to work in partnership to: achieve greater comparability and compatibility among their PSE systems; increase student and, ultimately, worker mobility; improve the international competitiveness of the European system of higher education.

In Canada, the articulation of purposes for PSE has been at the provincial/territorial level rather than at the pan-Canadian level because of the country’s federal system. The Council of Ministers of Education, Canada (CMEC) issued its report on Public Expectations for PSE in 1999.⁷ The report outlined what society can expect from PSE in six key areas: quality; accessibility; mobility and portability; relevance and responsiveness; research and scholarship; and accountability.

Premiers and territorial leaders, acting as the Council of the Federation, articulated a number of themes for post-secondary and skills training for discussion with stakeholders at a Summit on PSE and Training in February 2006.⁸ As well, federal-provincial-territorial ministers responsible for research, science and technology in 2001 set out principles for action aimed to take Canada from 15th to 5th place in research among OECD countries. However, for the most part, Canadian efforts to articulate a pan-Canadian performance framework for PSE have been limited.

THE EUROPEAN HIGHER EDUCATION AND RESEARCH AREA⁶

EU signatories to the Bologna Declaration agreed to harmonize, by 2010:

- *The readability and the comparability of European higher-education degrees through a common qualification framework*
- *Coherent quality assurance and accreditation/certification mechanisms*
- *Quality of higher education and research*
- *The benefits of a European higher-education area through program diversity*
- *Increased collaboration between and among European countries*

In a globally competitive, knowledge-based economy, there is a legitimate question about how Canada as a whole compares to other countries in its performance on several key post-secondary education variables. These variables include input measures such as expenditures and student participation, and output/outcome measures such as educational attainment and various social and economic indicators including employment and income. As other countries increase their investments and focus on PSE, it is critical that Canada’s education and skill development systems can compete.

This understanding is at the heart of the Canadian Council on Learning’s pan-Canadian assessment of Canada’s post-secondary education system. **CCL has attempted to build on the work of provincial/territorial jurisdictions to develop a nationwide perspective on the performance and progress of Canadian post-secondary education.**

⁶ Information adapted from the Main Documents section on the Bologna Process Website <http://www.bologna-bergen2005.no/> Accessed in July 2006.

⁷ Council of Ministers of Education, Canada (1999). A Report on Public Expectations of Post-secondary Education in Canada. Toronto.

⁸ Council of the Federation (2006). Discussion Guide: The Future of Post-Secondary Education and Skills Training in Canada. Prepared for Competing for Tomorrow: A Post-secondary Education and Skills Summit. Ottawa.

GOALS AND OBJECTIVES: A FRAMEWORK FOR PSE IN CANADA

2.2 INTERNATIONAL EXAMPLES OF GOALS AND OBJECTIVES FOR PSE

The general approach taken by other developed countries, outlined in Chapter 11, has informed the design of a Canadian framework to assess post-secondary education.

Several countries have recently conducted major reviews of their PSE systems and most have introduced a process to collect data and track key indicators to evaluate progress in achieving those goals. Of the processes reviewed, the EU's is the most advanced with regard to goal setting and measurement, having focussed on this issue since 2000. The EU system includes concrete goals for education and training as well as extensive, ongoing monitoring of 33 indicators and a series of numeric benchmarks (targets) for 2010.⁹ Education and training are discussed regularly at ministerial meetings and committees of experts monitor progress, update indicators and prepare reports on critical issues.

Australia also has a strong national system in place for higher-education reform, implementation and monitoring. The Australian Higher Education Quality Assurance Framework was put in place to

promote quality outcomes and provide university and government quality assurance processes. Data are collected and published on a wide range of variables related to the characteristics and performance of institutions. National benchmarks have been developed—although these tend to be national averages—to determine institutional performance. The Australia Universities Quality Agency (AUQA) conducts quality audits of self-accrediting Australian higher-education institutions and provides public reports on the audit outcomes.

The U.K. has developed a series of countrywide institutional processes or agencies, including the Higher Education Academy (HEA). The Academy was established in 2004 to work with the U.K. higher education community to enhance the student experience. Its functions include research and evaluation as well as accreditation of programs and individuals. The Higher Education Statistics Agency (HESA) was set up in 1993 as a central source for higher education statistics with the objective to collect and publish standardized data.

THE BOLOGNA DECLARATION INVOLVES SIX ACTION AREAS, INCLUDING:

- *A system of academic grades designed to improve international transparency and facilitate academic and professional recognition of qualifications;*
- *A system based on two cycles; a first cycle geared to the employment market, lasting at least three years; and a second cycle (master's), conditional upon completion of the first cycle;*
- *A system of accumulation and transfer of credits;*
- *Mobility of students, teachers and researchers;*
- *Co-operation with regard to quality assurance; and*
- *The European dimension of higher education.*¹⁰

2.3 GOALS AND OBJECTIVES FOR PSE IN CANADA

In the absence of an endorsed set of national objectives for PSE, CCL is proposing a possible set of goals and objectives for Canada. These can be considered as “provisional preferences,” in that they have not been clearly articulated nationally but do emerge logically from statements made by various provincial and territorial governments and national organizations. They are also supported by extensive domestic and international research. First, the strategic plans of provincial and territorial departments of advanced education and training in Canada were examined to identify common themes across the country. Second, goals and objectives from international jurisdictions were reviewed. In this exercise, the goal statements articulated by the European Union Ministers of Education in the “Lisbon Objectives in Education and Training” were the most useful.

This approach is based on the foundation of work already undertaken by the provinces and territories, but goes beyond that to situate Canadian PSE in an international context. This allows for comparisons with countries that face similar circumstances.

The following are eight potential goals for PSE requiring pan-Canadian review and assessment:

1. A skilled and adaptable workforce able to meet the human resource needs of the country
2. Capacity for innovation, knowledge creation, and knowledge transfer
3. Active, healthy citizenry
4. Quality PSE and training
5. Access for all Canadians
6. Participation and success of under-represented groups
7. Lifelong learning
8. Affordable and sustainable PSE and training

CCL’s aim in setting out these suggested objectives is to facilitate a national dialogue on the purposes of PSE and ways to benchmark pan-Canadian results. CCL wants this report to serve as a useful resource to help Canadians, their governments, and individuals and organizations involved in post-secondary education to consider critical issues in deliberations now taking place over the future direction of PSE in Canada.

The eight areas reviewed in this report provide a basis for an analytical appraisal of post-secondary education in Canada. The purpose is to examine the extent to which Canada is making progress toward achieving these goals. To complete the review, this document borrows from the European Union’s series of indicators and measures to address Canada’s performance and progress. The chosen indicators are meant to serve as a starting point to identify what we know in Canada about each objective and what measures should be monitored on an ongoing basis to track Canada’s progress in PSE in relation to national economic and social goals. In some cases, the data are readily available to track these indicators on an ongoing basis. In other cases, data will need to be collected more systematically if they are to be used as indicators. In still other cases, new data need to be collected for specific indicators.

The material brought together in the remainder of this report is organized in the following way. Each of the eight subject areas is examined in its own separate chapter in the following format:

1. **Introduction:** an overview of concepts related to the review of the objective, including any relevant background.
2. **What we know now:** a discussion about Canada’s performance, based on statistical indicators selected to illustrate performance and progress over time. Wherever possible, international comparisons are included to give an indication of how Canada’s performance compares with that of other countries.
3. **Conclusions:**
 - **To what extent are objectives being met:** a synthesis of findings from examination of statistical indicators.
 - **What we need to know next about (the chapter subject):** a review of data gaps and issues that need to be addressed to understand better the relationship between PSE and Canada’s economic and social goals.
 - **A positive record:** a summary assessment of current performance and successes.
 - **An uncertain future:** a description of why it is important to address this theme and gaps that must be filled for a more complete understanding of performance and progress.

A SKILLED AND ADAPTABLE WORKFORCE

3.1. Introduction

There is much more to post-secondary education than enabling individuals to obtain training for jobs. But there is no question that the linkages between education and the labour market are among the most important elements of an assessment of PSE performance. This chapter focusses on Canada's progress in producing a skilled and adaptable workforce to meet the human resource needs of the country in the 21st century.

POST-SECONDARY SECTOR TOO SLOW RESPONDING TO CHANGES IN SOCIETY OR ECONOMY

Current Education Status	Agree %	Disagree %
Full-time Post-sec. Student	36	58
Part-time Post-sec. Student	66	24
Not Attending Post-sec.	57	31
Average for all respondents	56	33

Source: Pacific Issues Partners. *Canadian Attitudes on Post-secondary Education: A Report for the Canadian Council on Learning*. Ottawa: Canadian Council on Learning, 2006.

As we see with a range of questions, the biggest difference is between full-time and part-time post-secondary students. Full-time students are significantly more optimistic and give the PSE sector positive ratings. Part-time students are skeptical and much less likely to give PSE a good rating.

One of the goals of this chapter is to shed light on the match—or mismatch—between the demand and supply of people with the skills and knowledge necessary to fill current and anticipated jobs in the economy. This requires estimating not only existing labour-market conditions, but also anticipated demand—a task fraught with the problems

of forecasting the future. HRSDC publishes an annual update of predicted job prospects in Canada, based on a model that projects new and replacement jobs in various occupational sectors. The department and the provinces also publish long-term forecasts in their labour-market information (LMI).

The question of *match* between demand and supply relates to issues such as the employment experience and income levels associated with various levels of education and educational attainment. These indicators provide, at the very least, an indirect method of assessing the supply/demand match.

Many economists also interpret income as a proxy measure for productivity—a matter of continuous concern in a trade-dependent economy such as Canada's. The role of human capital in contributing to the level and growth of productivity is the subject of considerable research. The contribution of post-secondary education to human capital development is obviously a relevant element in the equation.

There has also been much discussion over the years about the relative importance of *skills training* and *advanced education*. The former focusses on teaching individuals job-specific skills tied to particular kinds of work. The latter is more general in nature and focusses on exposing individuals to a wide range of knowledge and learning.

CANADIAN ATTITUDES TOWARD PSE

A very substantial majority (94%) strongly agreed (36%) or somewhat agreed (58%) that "the pace of change in the world makes it more important than ever to ensure that people can get more education or training at any time of their life."

Source: Pacific Issues Partners. *Canadian Attitudes on Post-secondary Education: A Report for the Canadian Council on Learning*. Ottawa: Canadian Council on Learning, 2006

3.2 What we know now

Relying on current information, the following indicators were chosen to explore the performance of post-secondary education in meeting Canadian labour market needs:

- Labour-market supply/demand match
- Apprenticeship entrants and completions

In addition, this chapter looks at outcomes of the relationship between PSE supply and labour market demand in terms of some typically cited indicators of a successful match:

- Income
- Graduate and employer satisfaction
- Employment and unemployment
- Contribution to productivity

3.2.1 LABOUR-MARKET SUPPLY/DEMAND MATCH

- » Two of every three new and replacement jobs require post-secondary education.
- » Labour shortages are predicted for jobs that require post-secondary education.

Looking Ahead: A 10-Year Outlook for the Canadian Labour Market, 2004–2013 is the federal government's most recent projection of labour-market demand and supply. It forecasts economic growth will increase demand at an annual average rate of 1.5% over the first five years of this study period, creating 1.26 million jobs between 2004–2008. A second major source of job openings results from workers leaving their jobs, particularly through retirement of aging baby boomers. Over the five years up to 2008, approximately 1.48 million people are expected to retire, or about 2% of the workforce each year.¹¹

Looking Ahead was prepared co-operatively by federal and provincial agencies, and reviews potential demand and supply in some 140 occupational and job classifications, based on detailed local and regional analyses. Potential supply of workers is based on the flow of students emerging from formal education every year, recent immigrants and people re-entering the job market after a period of non-participation.

Based on an analysis of data from the Canadian Occupational Projection System (COPS), *Looking Ahead* projects a mismatch between demand and supply—particularly for occupations that require at least a college diploma or apprenticeship training, as well as for management occupations. Two-thirds (66%) of new non-student jobs will demand PSE or be in the management group. This compares with about 58% in 2003.¹²

On the other hand, *Looking Ahead* predicts surpluses of people seeking jobs in occupations that do not require PSE, especially those that require only on-the-job training. There are substantial differences in supply and demand in the various regions of Canada. (See Table 3.2.1.1)

A looming demographic crunch will exacerbate Canada's labour shortages by the second decade of this century, when declining birth rates result in lower numbers of labour force entrants. Barring enhanced labour-market participation by currently under-represented groups, immigrants will soon become the sole source of labour-force growth.

Statistics show that current immigrants to Canada tend to have high formal educational levels and have strong labour-force attachment.¹³ The vast majority (87%) of principal applicants in the skilled worker category have a university degree, and across all immigration categories, more than two-thirds (68%) of all prime working-age immigrants arrive in Canada with a university degree.¹⁴

Groups—such as Aboriginal Canadians, people with disabilities and school dropouts—that are traditionally under-represented in the labour market will also become an important source of future labour supply. Building skill levels and employability of these groups will be vital to avoid labour shortages. Just as important, improving labour-market participation rates of these Canadians will bolster social cohesion and inclusion.

11 Bergeron L.P., Dunn K., Lapointe M., Roth W., & Tremblay-Côté N. (2004). *Looking Ahead: A 10-Year Outlook for the Canadian Labour Market 2004-2013*. Human Resources and Social Development Canada: Policy Research and Coordination Directorate, Strategic Policy and Planning. SP-615-10-04E. Ottawa.

12 Ibid.

13 These data do not assess quality or relevance of credentials.

14 Longitudinal Survey of Immigrants to Canada (2005). *Progress and Challenges of New Immigrants in the Workforce*. Statistics Canada, Social and Aboriginal Statistics Division. Catalogue No. 89-615-XIE, 2005. Ottawa.

Table 3.2.1.1 **Current and future labour-market conditions by occupation**

	NON-STUDENT EMPLOYMENT 2003 (000S)	CURRENT LABOUR- MARKET CONDITIONS	EXPANSION DEMAND (1)	RETIREMENTS (2)	LABOUR DEMAND (3)=(1)+(2)	LABOUR SUPPLY (4)	POTENTIAL PRESSURES (3) VS (4)	FUTURE LABOUR- MARKET CONDITIONS
Total	14,613.1	Fair	A	A	A	A	-	Fair
Skill Type								
Business, finance and administration	2,980.7	Fair	A	AA	A	A	-	Fair
Natural and applied sciences	1,064.4	Fair	AA	A	A	A	-	Fair
Health	934.6	Good	AA	AA	AA	A	Up	Good
Social science, education, government service and related	1,073.2	Fair	AA	AA	AA	AA	-	Fair
Art, culture, recreation and sport	408.8	Fair	A	A	BA	AA	Down	Fair*
Sales and service	3,952.9	Limited	A	A	A	AA	Down	Limited
Trade, transport and equipment operators	2,351.2	Fair	A	A	A	A	-	Fair
Primary industry	527.2	Limited	BA	A	A	AA	Down	Limited
Processing, manufacturing and utilities	1,319.7	Limited	A	A	A	A	-	Limited
Skill level								
Management	1,372.1	Good	A	AA	AA	BA	Up	Good
University degree	2,513.6	Fair	AA	AA	AA	A	Up	Fair*
College diploma or apprenticeship training	4,612.1	Fair	A	A	A	A	--	Fair
High school diploma	4,653.4	Fair	A	A	A	A	-	Fair
Only on the job training	1,461.5	Limited	BA	A	BA	BA	Down	Limited

AA=above average; A=average; BA=below average; - =no change; *=pressure insufficient to change future conditions
Source: HRSDC-PRCD Labour Market and Skills Forecasting and Analysis Unit Reference Scenario, 2004.

3.2.2 APPRENTICESHIP ENTRANTS AND COMPLETIONS

» Declining completions in some highly skilled trades is a major concern.

Skilled tradespeople are, quite literally, building the foundation for our future. However, there are not enough people pursuing these careers in Canada today. The issue is not attracting people to trades but ensuring apprenticeships are completed. The number of people completing registered apprenticeships has barely changed in decades, despite the fact that the need for skilled trades workers is growing at a rapid rate.

In Canada, there are more than 275 trades and occupations, including scores of apprenticeship trades. Only 45 trades have "Red Seal" apprenticeships, a national designation that entitles a qualified person to practice that trade in any province. Training for and requirements needed

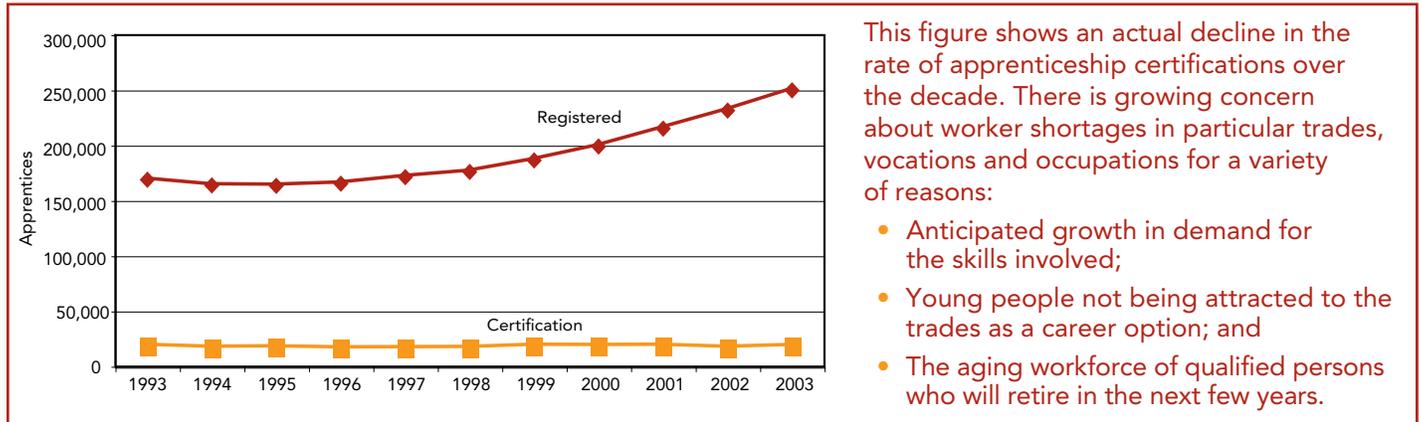
to practice other trades and occupations fall under provincial jurisdiction, and vary widely across the country. Many *new-economy* trades and occupations do not have national designations, which hampers labour mobility and further aggravates the demand-supply mismatch.

The problems facing apprenticeship, in particular, are acute. A 2005 Statistics Canada study reported on registered apprentices over the decade 1992–2002, using the Registered Apprenticeship Information System, which provides the numbers of registrations and completions at the beginning and end of the study period. Figure 3.2.2.1 illustrates that, while registrations are up, completions are not.¹⁵

¹⁵ Prasil, S. (2005) Registered Apprentices: The Class of 1992, a Decade Later. Statistics Canada, Culture, Tourism and the Centre for Education Statistics. Catalogue no. 81-595-MIE, Ottawa.

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Fig. 3.2.2.1 Distribution of apprentices by registration and completions

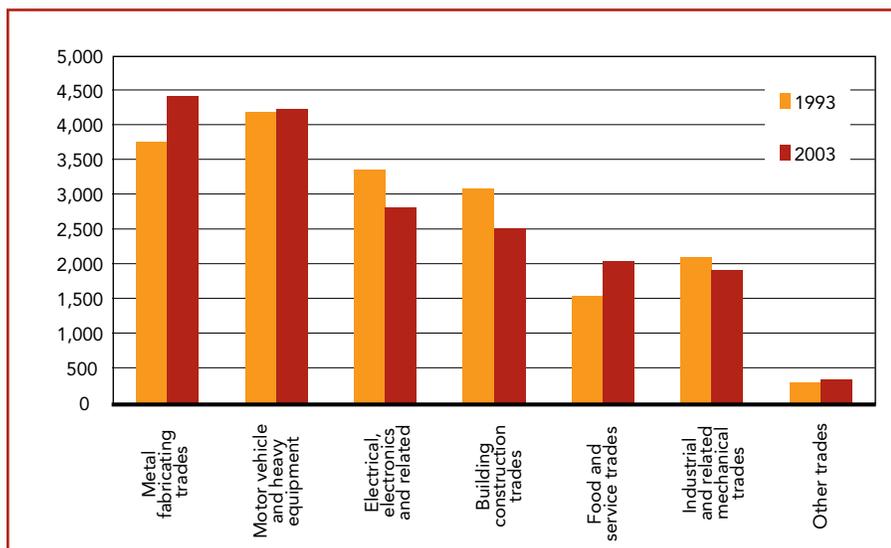


Source: Statistics Canada. CANSIM, tables 4770051 and 4770052

These shortages are experienced with differing degrees of intensity in different regions of the country. They are most pronounced in Western Canada, which is currently experiencing an economic boom in the resource and construction sectors—both heavily dependent on tradespeople and apprentices.

The Pan-Canadian Education Indicators Program (PCEIP)¹⁶ compares completion rates for various fields of study in trades that require apprenticeship training to the numbers from a decade earlier. The data show declines in electrical, electronics and related trades as well as in building construction trades.

Fig. 3.2.2.2 Registered apprenticeship completions by trade group, Canada, 1993 and 2003



Notes: Trades ranked according to number of completions in 2003.

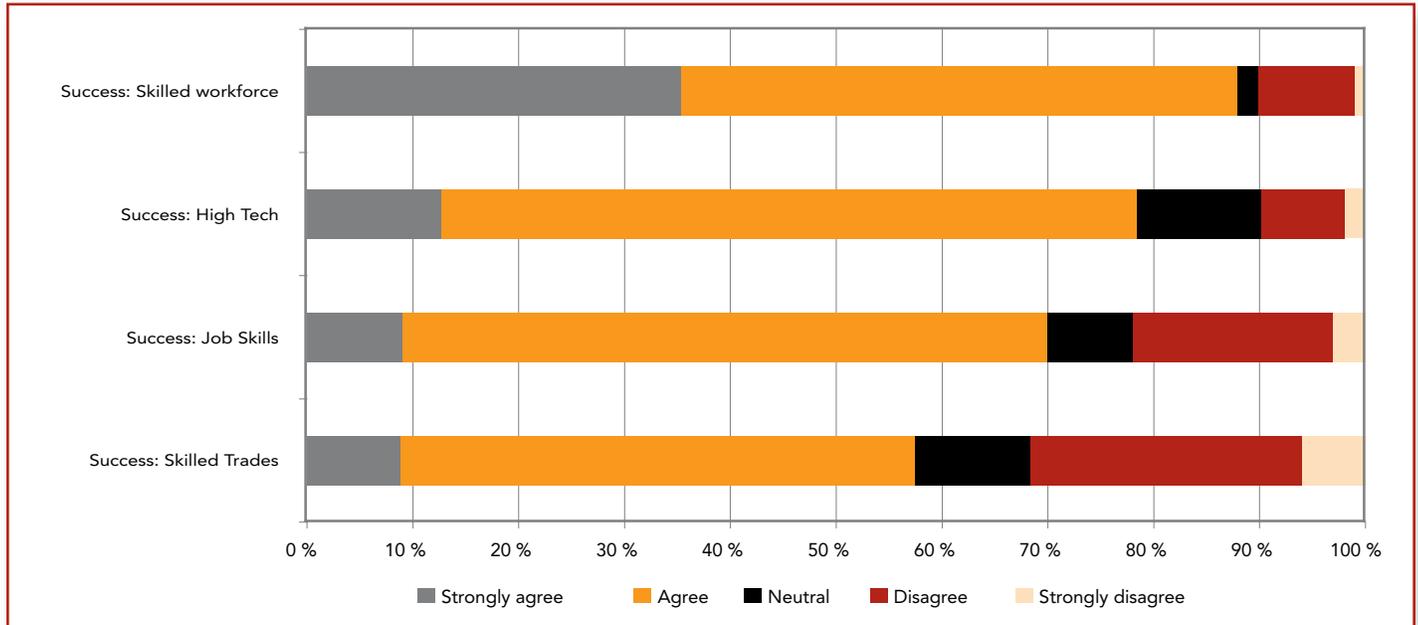
Figure source: Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program. Council of Ministers of Education, Canada and Statistics Canada: Canadian Education Statistics Council. Catalogue no. 81-582-XIE. Ottawa. 2006.

Concerns have been expressed for several years about the insufficient numbers of young people pursuing trades training. Federal and provincial governments have invested in initiatives to encourage youth to consider apprenticeships and other trades and vocations as career choices.

There are indications these expenditures are paying off. Apprenticeship enrolments are up significantly as a result of specific initiatives undertaken in several provinces to address such skill shortages. A constraint on improvement is the limited ability of employers to provide training opportunities.

CCL's public poll indicates that Canadians have a generally favourable impression of the performance of post-secondary institutions in producing graduates who match the needs of the labour market. Figure 3.2.2.3, however, shows that the lowest level of agreement was in response to questions focussed on success in meeting the need for skilled trades.

Fig. 3.2.2.3 **A skilled workforce: need and performance**



Source: Pacific Issues Partners. *Canadian Attitudes on Post-secondary Education: A Report for the Canadian Council on Learning*. Ottawa: Canadian Council on Learning, 2006

3.2.3 INCOME

» The average university graduate will earn a premium of 40% more than the average high-school graduate—\$1 million over the individual’s lifetime.¹⁷

Income is one of the most commonly used indicators of benefits to PSE learners. A data review demonstrates that average income levels generally increase in tandem with the level of educational attainment.

A Statistics Canada study published in September 2004, based on Census data, indicates there is roughly a 40% wage premium associated with a university degree compared to the earnings of high-school graduates.¹⁸ The income differential—or education premium—is not found only at the outset of the graduates’ working lives, but also persists and grows over time.

PCEIP reports that the earnings differential peaks during the 50–54 age cohort, when university graduates earn, on average, more than double the employment income of workers with less than high school.

Fig. 3.2.3.1 **Average employment income by age group and education level (all workers) Canada, 2000**

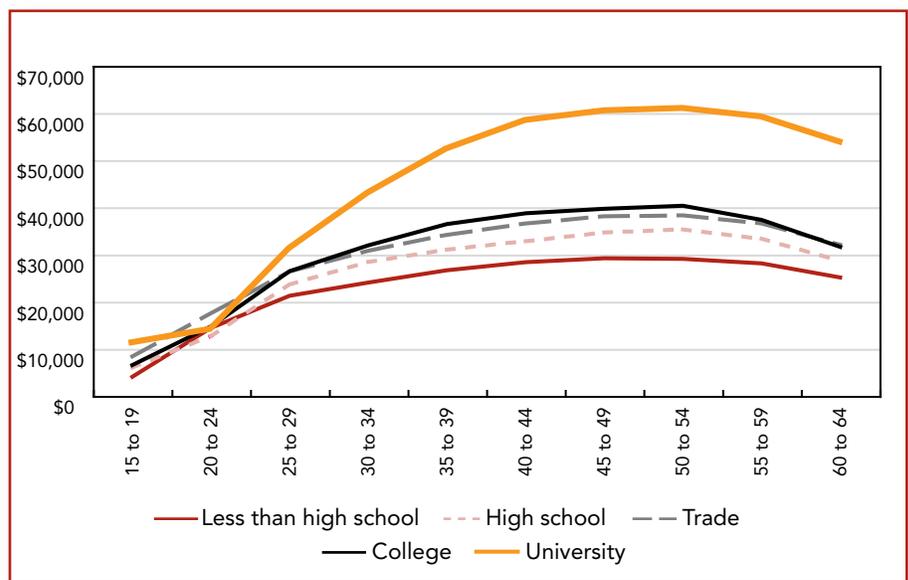


Figure source: Education Indicators in Canada: Report of the pan-Canadian Education Indicators Program. Council of Ministers of Education, Canada and Statistics Canada: Canadian Education Statistics Council. Catalogue no. 81-582-XIE. Ottawa, 2006.

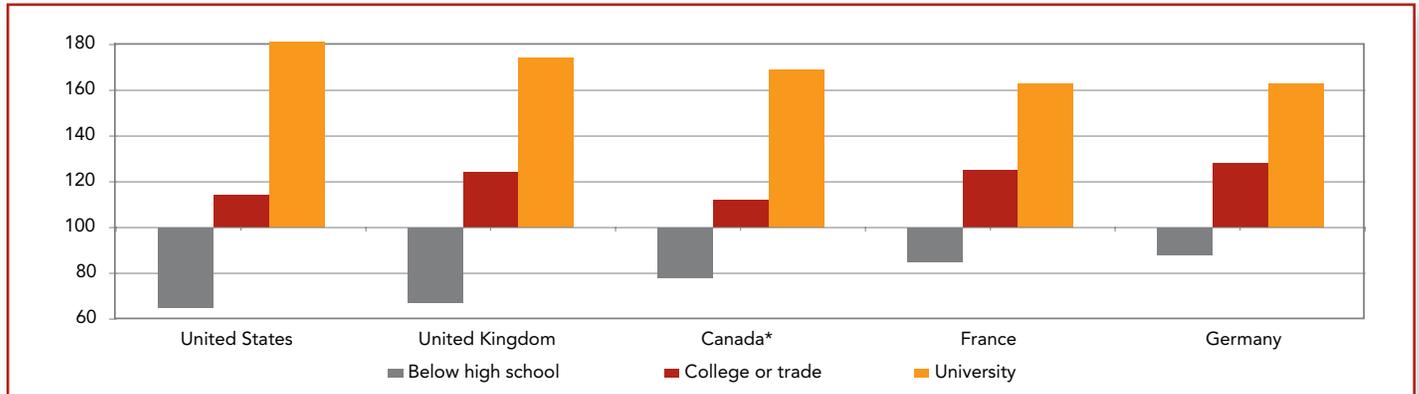
¹⁷ Discussion paper, Ontario Postsecondary Review, September 2004, p. 8.

¹⁸ Morissette R., Ostrovsky Y., & Picot G. (2004). Relative Wage Patterns among the Highly Educated in a Knowledge-based Economy. Statistics Canada: Analytical Studies Branch. Research Paper No. 232. Catalogue no. 11F0019MIE. Ottawa.

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This pattern demonstrating a strong positive correlation between education and income is also evident in other OECD countries, as shown in the PCEIP 2005 figure on comparative earnings, by level of education:

Fig. 3.2.3.2 **Relative earnings of the 25- to 64-year-old population with income from employment, by level of educational attainment, selected OECD countries (high school graduation = 100)**



Note: Countries are ranked in descending order of relative earnings for the population with university education.

Data source: OECD. Education at a Glance. 2006.

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.

The figures clearly illustrate that Canada's income by level of education follows international patterns of greater compensation for higher levels of education.

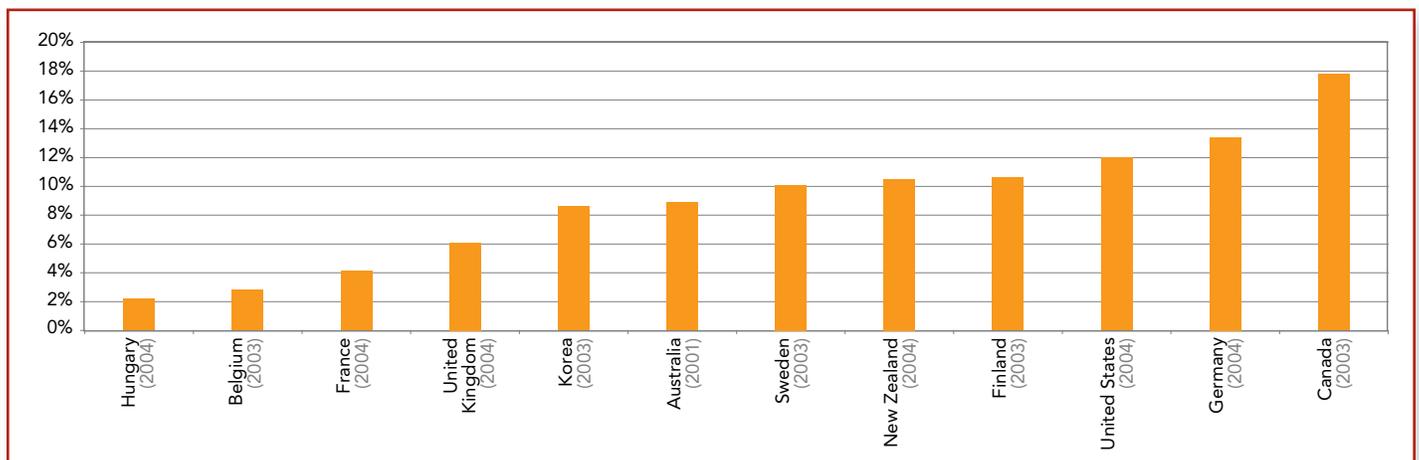
The *income premium* is not equally distributed: 25% of university degree holders experience a negative premium, while the top 25% earners among university degree holders experience a premium of more than 80%.

One of the anomalies of the income premium is its uneven distribution. Research by Hugh Mackenzie for the

Rae Commission in Ontario found that "relative to the average earnings of high-school graduates, the 'premium' is actually negative for 25% of [university] degree holders, and is more than 80% for 25% of degree holders."¹⁹

An international comparison by Patrice de Broucker shows the dispersion of income is greatest in Canada, as measured by the proportion of the working-age population with university degrees who earn half the median earnings or less.²⁰

Fig. 3.2.3.3 **Proportion of the 25- to 64-year-old population with university degree earning half of the median earnings or less, 2003**



Note: Countries are ranked in ascending order of the proportion of the 25- to 64-year-old population with university degree earning half of the median earnings or less.

Source: Education at a Glance. Tables A9.4a. OECD. Paris. 2006.

¹⁹ Mackenzie, H. (2004). Funding Postsecondary Education in Ontario: Beyond the Path of Least Resistance. A study commissioned by The Ontario Coalition for Postsecondary Education. p 17.

²⁰ de Broucker, P. Chart supplied to CCL, June 2006.

3.2.4 EMPLOYMENT AND UNEMPLOYMENT

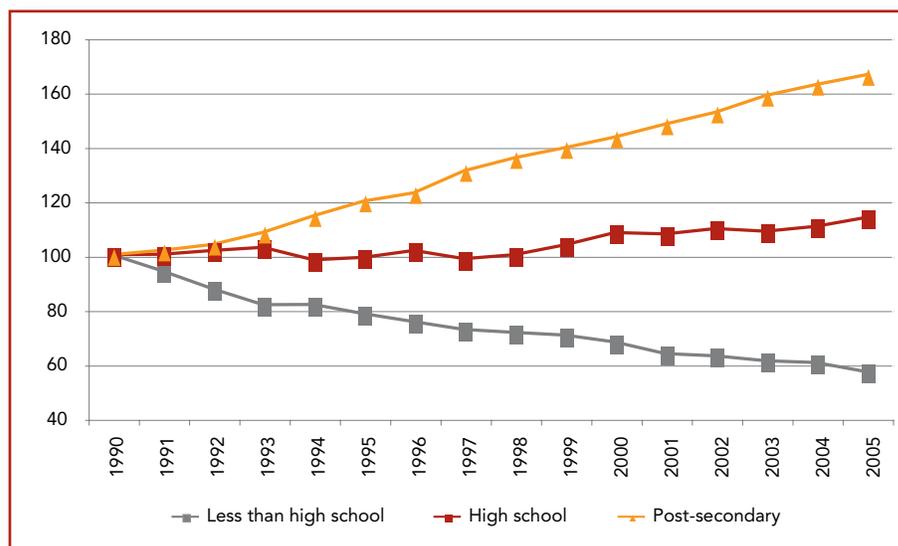
» Higher educational attainment is strongly related to employment.

Individuals pursue post-secondary studies for many reasons—one of the most important is to prepare for gainful employment. About 88% of college graduates and 84% of university graduates are working two years after graduation.²¹

Looked at another way, average employment growth in recent years was strongly correlated with level of education (as shown in Figure 3.2.4.1) based on Statistics Canada data.

Higher levels of educational attainment are also strongly associated with lower rates of unemployment, as shown by PCEIP 2005 data that demonstrate the clear relationship between unemployment rates and lower levels of education.

Fig. 3.2.4.1 **Employment growth by level of education (1990=100)**



Source: Statistics Canada. Labour Force Survey: Historical Review

Table 3.2.4.1 **Unemployment rates by level of education, Canada, 2005**

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%

Source: Statistics Canada. Labour Force Survey 2005.

21 Junor S. & Usher A. (2004). Price of Knowledge. Access and Student Finance in Canada. Millennium Research Series. Millennium Scholarship Foundation. Canada.

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3.2.5 LITERACY LEVELS

» Literacy is a key factor in the match between education and labour market requirements.

Some analysts argue that literacy skills are a better indicator of a good match between education and labour-market requirements than more typical measures of educational attainment. As noted in Chapter 9, Lifelong Learning, recent work on literacy has gone beyond traditional assessments of the basic ability to read, and has focussed on a number of complementary dimensions: prose and document literacy, numeracy and problem solving.

This corresponds with the view expressed by many employers—especially those involved in white-collar sectors—that what they seek are individuals with *employability skills* generally, rather than specific *job-related skills*. These employability skills include critical thinking, communications, teamwork and problem solving, many of which are linked to this more comprehensive definition of literacy.

The Adult Literacy and Life Skills Survey (ALL) discusses the *employability* of working-age populations, defining employability as “essentially refer[ring] to the capability of adults to obtain and maintain satisfactory work.”²² Employability skills required for employment will naturally vary with the type of job, but ALL notes that “many efforts have been made to identify and list key employability skills that apply in varying degrees to all jobs”, pointing out that “most lists feature foundation skills such as literacy, numeracy and problem solving near the top.”²³

Studies show that Canadians with lower numeracy skills levels—increasingly viewed as one of the major employability skills for many jobs—are twice as likely to experience unemployment for six or more months as they are to be employed all year. The same general finding applies in all but one of the other countries surveyed in the ALL study.

3.2.6 GRADUATE AND EMPLOYER SATISFACTION

» Graduates and employers report high levels of satisfaction with the relevance of education and training to job requirements.

Some provinces regularly survey recent graduates on a variety of issues. In British Columbia, a graduate outcome survey asks graduates the extent to which they are satisfied with the usefulness of the knowledge and skills they acquired to perform their jobs. The results for the most recent report for British Columbia are displayed below:

Fig. 3.2.6.1 **Graduate satisfaction with the knowledge and skills to perform their job***

SURVEY YEAR	COLLEGES, UNIVERSITY COLLEGES, AND INSTITUTES (%)	UNIVERSITIES (%)
2002	77.2	88.0
2003	75.4	n/a**
2004	76.5	86.3

* Due to the small size for the 2002 and 2003 data for colleges, university colleges and institutes, the margin of error is too large to calculate a meaningful trend line.

**University data for 2003 are not applicable because they were based on graduates five years after graduation rather than two years after graduation.

specific dimensions of the skills or knowledge of post-secondary educated workers.

The Alberta ministry responsible for advanced education measures employer satisfaction with the preparation of recent graduates as an indicator of the quality of education. Its most recent report, for 2004–2005, indicated that 89% of employers were satisfied with the “skills and quality of work of all learning system graduates” and 90% of employers were satisfied with the “skills and quality of work of post-secondary graduates.”

Ontario government reports of employer satisfaction levels with college graduates indicate a steady satisfaction rate exceeding 90% which dates back to 1999–2000. In Quebec, employer surveys also show a high degree of satisfaction with respect to the competence of hires holding technical diplomas. The overall satisfaction rates rose from 90% in 1990, and held steady at around 95% in subsequent surveys conducted in 1995, 1997 and 2002.

If a measure of employer satisfaction is to be useful in establishing the extent to which Canada as a whole is producing a skilled and adaptable workforce, greater consistency and more specificity in gathering data across Canadian jurisdictions are needed.

Only a few jurisdictions survey employers regarding their views of the skills and knowledge PSE graduates bring to the workplace. And among those that do, the questions are usually very general in nature and do not explore

22 Statistics Canada and OECD (2005). *Learning a Living: First Results of the Adult Literacy and Life Skills Survey*. Ottawa–Paris. p. 112.

23 Ibid. p. 112-113

SINGAPORE'S FOCUS ON SKILLS DEVELOPMENT

The results of the Program for International Student Assessment (PISA) indicate that Singapore's students score among the highest of all OECD countries, especially for mathematics and sciences, which are considered critical skills in the knowledge economy. Even with this competitive advantage, the country works continually to improve skills levels among its population.

The Singapore Workforce Development Agency (WDA) has developed an employability skills system to promote innovation and creativity in the labour market. Employers and industry helped to develop the Employability Skills System, which promotes 10 essential employability skills.

ESSENTIAL EMPLOYABILITY SKILLS

- Workplace literacy and numeracy
- Information communication technology
- Problem-solving and decision-making
- Initiative and enterprise
- Communication and relationship management
- Lifelong learning
- Global mindset
- Self-management
- Workplace-related life skills
- Health and workplace safety

The WDA has developed training modules for each subject area. Training for individuals is funded up to 90% of course fees (to a maximum of \$16 hourly or whichever is lower) from Singapore's Skills Development Fund. Absentee payroll for employers is funded up to 90% of hourly basic salary (up to \$6.80 hourly or whichever is lower) from the country's Skills Redevelopment Program.

3.2.7 CONTRIBUTION TO PRODUCTIVITY

- » Investment in literacy is around three times more important than investment in physical capital over the long term.
- » A country with a literacy score 1% higher than the average ends up with 2.5% higher average labour productivity and 1.5% higher GDP per capita.

Two of the main ways to raise a country's gross national product are to increase the number of people in the labour market or to raise the level of productivity. Given Canada's demographic pressures, with an aging workforce and smaller youth cohort, it cannot count on the former. By 2013, three-quarters of all job openings will result from retirements. As a consequence, increasing productivity is the only option to maintain Canadians' living standard and quality of life in the coming decades.

Productivity growth results from a number of factors, including capital investment, resources, the size and skills of the workforce, technology and innovation.

Human capital and productivity

This section sets out some evidence and thinking around what many economists call *human capital* and its role in labour productivity and GDP per capita or per worker, given the linkages between PSE and human capital development.

In the past several years, there has been keen interest in Canada's relative productivity vis-à-vis the United States, its primary trading partner. One well-known estimate is that Canada lags the U.S. in productivity by 18%.²⁴ This is cited as the chief reason for the gap in standard of living with our American neighbours, as measured by GDP per capita (a gap of 15.3%) or personal income per capita (a gap of 21.3%) in 2001. Real incomes in Canada have been falling relative to the U.S. for over two decades. The same study cites figures that show Canada had the third-lowest rate of growth in real GDP per capita among OECD countries over the period 1950–2000.²⁵

Concerns about productivity explain the increased efforts under way—in Canada and internationally—to gain a better understanding of the relationship between post-secondary education and productivity. The OECD has published studies that attempt to identify the issues involved. The following OECD charts and text, published in *Education at a Glance 2005* and *2006*, examine the contribution of human capital to economic growth and

²⁴ Sharpe, A. (2002). Raising Canadian Living Standards: A Framework for Discussion. Centre for the Study of Living Standards. No. 5.

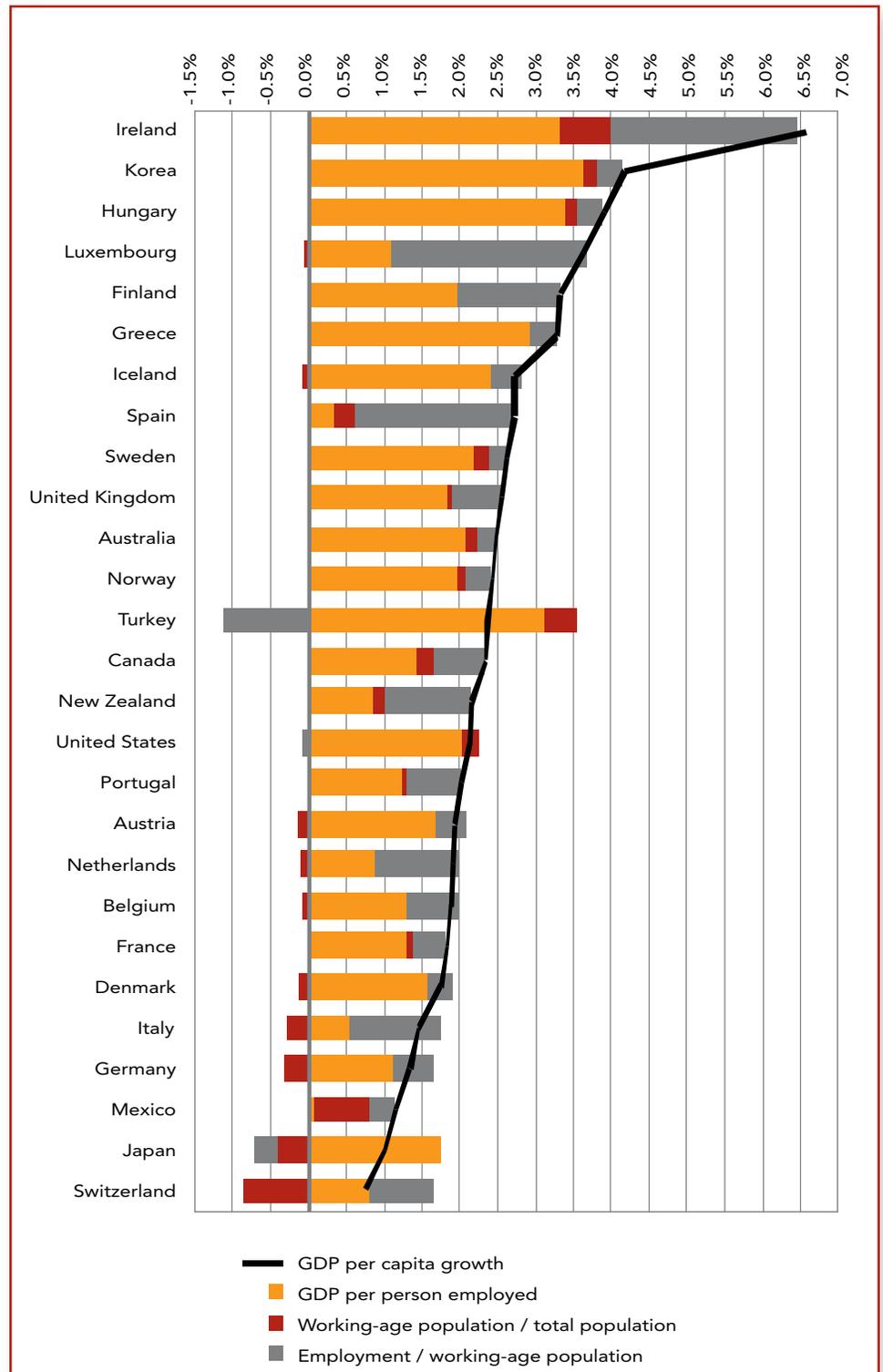
²⁵ Ibid.

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productivity. Figure 3.2.7.1 sets out a general comparative picture of growth in GDP per capita, a commonly used proxy for productivity, and isolates a number of factors related to employment and productivity patterns.

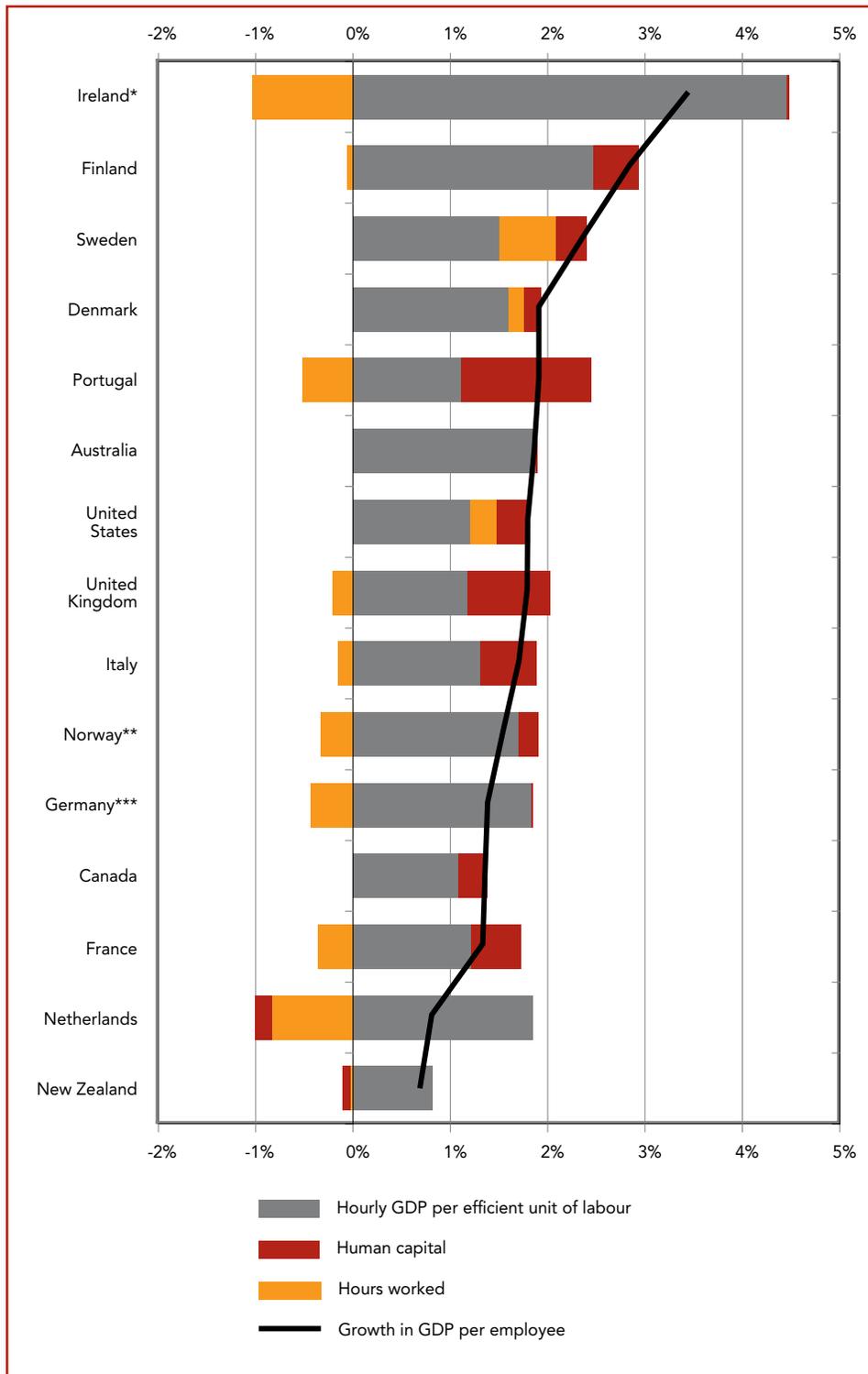
Figure 3.2.7.2 attempts to explore the factors underlying the *productivity* dimension by estimating the growth in contribution to GDP per person that can be attributed to human capital.

Fig. 3.2.7.1 **The driving forces of GDP per capita growth (1990–2000); trend series, average annual percentage change**



Note: Countries are ranked in descending order of GDP per capita growth.
Source: OECD, *Education at a Glance*, Paris, 2006

Fig. 3.2.7.2 Enhancements in human capital contributing to labour productivity growth (1990–2000)



The chart indicates that in Canada, human capital development made a smaller contribution to GDP growth than in several other countries, but seemed roughly comparable to the contribution made in the U.S.

A study by Canadian scholars looked at data from 14 OECD countries over the period 1960–1995. This study, based on the International Adult Literacy Survey (IALS) and published in 2004, concluded: **“The key economic policy implication that came out of this result is that, in contrast to previous findings ... human capital accumulation matters for the long-run well-being of developed nations.”**²⁶

It was noted: “The long-run effects of human capital investment in literacy are much more important—around three times—than investment in physical capital. A country that achieves literacy scores one percent higher than the average ends up in a steady state with labour productivity and GDP per capita respectively higher than other countries by 2.5 and 1.5 percent on average.”²⁷

Based on the following decomposition: growth in GDP per person employed = (changes in hourly GDP per efficient unit of labour) + (changes in average hours worked) + (changes in human capital).

*Year of reference 1990–1999.

**Mainland only.

***Year of reference 1991–2000.

Countries are ranked in descending order of trend growth in GDP per person employed.

Source: OECD, *Education at a glance*, Paris, 2005.

26 Coulombe, S., Tremblay, J.F., and Marchand, S. (2004). Literacy scores, human capital and growth across fourteen OECD countries. Statistics Canada, Catalogue no. 89-552-MIE. p. 7.

27 Ibid. p. 31.

3.3 Conclusion

3.3.1 THE EXTENT TO WHICH OBJECTIVES ARE BEING MET

1. By 2013, up to 66% of new non-student jobs will require post-secondary education or will be in the management group. Given that just 44% of Canadians currently have PSE qualifications and that the pace is slow demographically, there will be a major shortfall between the number of PSE graduates and labour-market demand.
2. Canada is currently facing labour shortages in some of the highly skilled trades—such as construction and mechanical trades—and there are looming shortages in vocations and trades generally as a result of the aging workforce and the lack of new trainees. Declining completion rates among apprenticeable trades is a concern not only for the existing labour market but also in terms of forecasted demand for these occupations. Enrolment and, more critically, completion rates in many trades requiring apprenticeships are not at levels necessary to meet demand.
3. Immigration, alone, cannot respond to Canada's short- or mid-term labour-market needs. We must also maximize human potential already in Canada, both among native-born and new Canadians.

3.3.2 WHAT WE NEED TO KNOW NEXT ABOUT A SKILLED AND ADAPTABLE WORKFORCE

1. Forecasting labour-market demand and supply needs to be improved at the local, regional and national levels. As a first step, measuring earlier forecasts made through the Canadian Occupational Projection System (COPS) against actual performance—"backcasting" instead of "forecasting"—would help to refine methodologies for future labour-market information.
2. National data on PSE completions by field of study for the PSE sector as a whole are required to gain a better understanding of the supply side of the equation. A national picture of demand and supply would enable better linkages between PSE and labour markets, and assist individual Canadians to make educational and career decisions. Particular attention needs to be given to improve significantly the completion rate in apprenticeship programs.
3. Further support and analysis of the labour-market experiences of recent immigrants is needed to enhance our understanding of Canada's labour supply and demand. This work will also guide how best to shape program responses to facilitate the integration of recent immigrants and the proper use of the skills they bring to Canada.²⁸
4. The Workplace and Employee Survey from Statistics Canada needs to be enhanced to collect detailed information to allow a thorough examination of the kinds of skills required in key sectors, and to measure the results of PSE in providing graduates with such skills.
5. While we know that a 1% increase in literacy levels translates to a 2.5% rise in labour productivity and 1.5% increase in GDP per capita, too little is known about the factors affecting human capital and productivity. Tangible data about the direct impacts of PSE on productivity need to be gathered and analyzed.

3.3.3 A POSITIVE RECORD — AN UNCERTAIN FUTURE

A positive record

PSE plays a critical role in the formation of human capital. In turn, human capital is vital to productivity growth. Canada's record in providing post-secondary education and training is strong.

An uncertain future

Demographic trends and changing labour-market needs require urgent and intense priority be given to the amount, distribution, and quality of human capital development.

By 2013, up to 70% of new non-student jobs²⁹ will require post-secondary education or will be in the management group. However, just 44% of Canadians currently have PSE qualifications. As many of them are members of the Baby Boom generation, large numbers of these educated workers will leave the workforce within the next few years. Consequently, Canada's already sizeable gap between available PSE graduates and labour-market demand will widen dramatically over the coming decade.

Employers are reporting labour shortages in numerous fields including engineering, health professions, and high-technology and most especially, in some of the highly skilled trades. Critical shortages are forecast in vocations and trades in general, as a result of both an aging workforce and the lack of new trainees. Without a significant increase in completion rates among trades requiring apprenticeships, the inadequate supply of trained workers may hamper—and, in some cases is already hindering—economic growth in many parts of the country.

While immigrants have traditionally played a crucial role in the Canadian workforce, their increasing numbers will not begin to meet Canada's labour-market needs in the near- to medium-term. To ensure a steady supply of qualified workers, it will be essential to develop and capitalize on contributions of all potential workers, whatever their current employment status or education levels. Inevitably this will require the involvement of the post-secondary sector to increase Canadians' skills and education levels.

Of equal concern, 25% of Canada's post-secondary educated workers are employed in jobs below their qualifications—an under use of skills and talents. At the very time the country faces skilled worker shortages in many sectors, the potential contributions of these individuals is not being fully exploited.

Canada needs more comprehensive information on labour-market demand and supply dynamics, and PSE's role in advancing the national interest. As well, attention must be paid to ensure the PSE sector is able to meet future demands.

²⁹ Jobs taken by students who are at school including PSE are not counted.

4.1 Introduction

Knowledge generation and dissemination are key drivers of economic performance and social progress. Knowledge is created through groundbreaking research—which accelerates discoveries that advance society—and is shared through its commercialization.

Research is a primary mission of many universities; applied research is an increasingly important activity in colleges as well. Curiosity-driven research and what is often called basic research help expand the scope of human knowledge—one of the fundamental purposes of post-secondary education.

Research also paves the way for innovation. The results of research in the natural, life and social sciences, and humanities enhance quality of life and well-being. The development and application of research through technology and innovation—or R&D—is a central factor that influences growth and increased productivity in a knowledge-based economy.

The creation and application of new knowledge is pivotal to the competitiveness of the private sector. It is equally essential for governments, which require a strong knowledge base to protect public interests and advance sound regulations and responsive public policies. For individual Canadians, innovation results in a better standard of living and higher incomes, as well as more jobs and increased job satisfaction.

Concerns about Canada’s performance in comparison to that of its major trading partners prompted federal and provincial governments to agree in 2001 to work together to move Canada from 15th place to one of the top five OECD countries for research intensity. This is the only national benchmark that has been articulated in relation to higher education and research.

Canada has pursued an ambitious R&D agenda through a variety of policy and program initiatives. However, evidence suggests these initiatives are not enough to keep our country at the leading edge of the highly competitive global economy. Although gains have been made, Canada still lags most other developed countries in R&D.

Given PSE institutions’ major contributions to innovation, this chapter concentrates on the relationship between research and productivity. It explores inputs, such as R&D expenditures, and outputs and outcomes that reflect R&D’s contribution to productivity.

CANADIAN ATTITUDES TOWARD PSE

A very large majority (87%) of poll respondents strongly (26%) or somewhat (61%) agreed that “Canada’s economic future increasingly depends on the research and innovation that goes on in our colleges and universities.” Canadians also agreed that universities and colleges are doing excellent (11%) or good (46%) work in this area.

Source: Pacific Issues Partners. *Canadian Attitudes on Post-secondary Education: A Report for the Canadian Council on Learning*. Ottawa: Canadian Council on Learning, 2006.

LINKS BETWEEN HIGHER EDUCATION AND R&D: THE INTERNATIONAL EXPERIENCE³⁰

<p>U.K.</p>	<p>In 2002, public sources in the U.K., including Government Departments, Research Councils, Higher Education Funding Councils and Higher Education Institutes (HEIs), invested £5,454million in R&D. Of this, £3,093million in R&D was performed by U.K. HEIs (57%). Private sources—including businesses, private non-profit enterprises and overseas sources—invested £14,107M in 2002, of which £1,319M in R&D was performed by HEIs (9.3%). In 2002, R&D performed by HEIs (HERD) accounted for 22.6% of total R&D (GERD) spending. Figures are based on the Office of National Statistics R&D survey results.</p>
<p>Germany</p>	<p>Higher education institutions, non-university research institutions and industry conduct research. State universities and colleges are funded by their respective states, whose budgets cover the costs of staff, equipment, materials and investments. Where large investments are necessary, the Federal Government contributes to the costs. Because research and education are publicly funded under a uniform system, the conditions required for research to be conducted at state-run universities and colleges are almost wholly financed by the federal and state governments. About one-third of total funding goes to research and development. Many research activities also rely on third-party funding, 77.2% of which is provided by the state. In 2002, a total of €9 billion was made available for research and development activities at universities and colleges. The state-provided share amounted to 85.6%.</p>
<p>France</p>	<p>Higher education and research are closely linked in France. More specifically, a master's degree, whether professionally or research-oriented, can only be accredited when it is run by teaching teams assessed on the basis of the scientific results of their members—who are members themselves of recognized research teams or labs. Doctoral programs are developed within universities and linked to labs and teachers-researchers and researchers actively involved in related fields.</p> <p>Sixty per cent of public research is conducted in universities, with universities and research institutions generally involved in joint research units.</p>
<p>Norway</p>	<p>Higher education institutions play a central role in the Norwegian research system. Nine out of 10 researchers obtaining a Ph.D. are trained in this sector. Higher education maintains the knowledge base for research in Norway and collaborates extensively with researchers from other sectors (e.g., research institutes, industry). Research in the higher education sector is mainly directed toward basic research, although higher education institutions also have a clear mandate to conduct applied research in collaboration with industry, and university colleges have a mandate in regional development. Most R&D in humanities and social sciences is carried out in this sector. The majority of academic staff in higher education institutions is obliged to research and teach, but the balance of the two tasks varies among institutions and individual staff members.</p> <p>In 2001, 56% of public investment in R&D was allocated to the higher education sector while 35% was allocated to public or private research institutes, which mostly perform applied research, and 9% was allocated to industry. There are two main sources of R&D funding in the higher education sector: general university funds and external sources. General funds account for about 80% of R&D funding in this sector. The Research Council of Norway is the most important external source of R&D funding.</p>

4.2 What we know now

The OECD monitors almost 90 indicators in the fields of R&D and science and technology (S&T). Fewer than 20 of these indicators focus on the outputs and impacts of S&T, such as patents, balance of payments, and trade in high-tech industries.

For this first report, indicators that rank Canada internationally with respect to inputs to R&D through expenditures and economic outputs and outcomes are examined. Economic impacts of R&D are important given R&D's role in leading innovation which is vital to Canada's future economic prosperity.³¹ The following indicators were selected for examination:

CANADA'S R&D

The history of Canada's R&D experience is outlined in a publication prepared by the AUCC. "Momentum" recounts the growth in Canadian R&D from the late 1930s to the present and outlines the results being achieved through research in many areas of Canadian life. A recent survey by the ACCC highlighted the involvement of colleges and institutes in applied research.

Inputs	Outputs and outcomes
<ul style="list-style-type: none"> • Expenditures on R&D • Gross expenditures on R&D (GERD) as a percentage of GDP • Higher education expenditures on R&D (HERD) as a percentage of GDP 	<ul style="list-style-type: none"> • PSE enrolment in—and graduates from—math, physical sciences, engineering and computer science • Researchers and R&D personnel • Licenses, patents and start-up companies • Contribution to productivity

4.2.1 GROSS EXPENDITURES ON R&D (GERD) AS PERCENTAGE OF GDP

- » R&D expenditures as a percentage of Canada's GDP remain below the OECD average.
- » Significantly more investment is required from all sources, including the private sector, for Canada to climb to 5th from 15th in international rankings for R&D intensity.

As in other OECD countries, R&D in Canada is carried out in a number of sectors: business, federal and provincial governments, post-secondary education, and the private non-profit sector. The combined total of R&D expenditures from all sectors is referred to as gross expenditures on R&D (GERD). GERD and HERD (higher

education expenditures on R&D) as a percentage of GDP are recognized internationally as a comparable, proxy measure for R&D activity and intensity.

Business R&D expenditures usually amount to two-thirds of total R&D expenditures. In Canada, business R&D expenditures constitute the single largest component of GERD, although the relative importance of higher education expenditures is greater than in other countries.

Fig. 4.2.1.1 R&D intensity in top 20 countries as a share of GDP, 2003

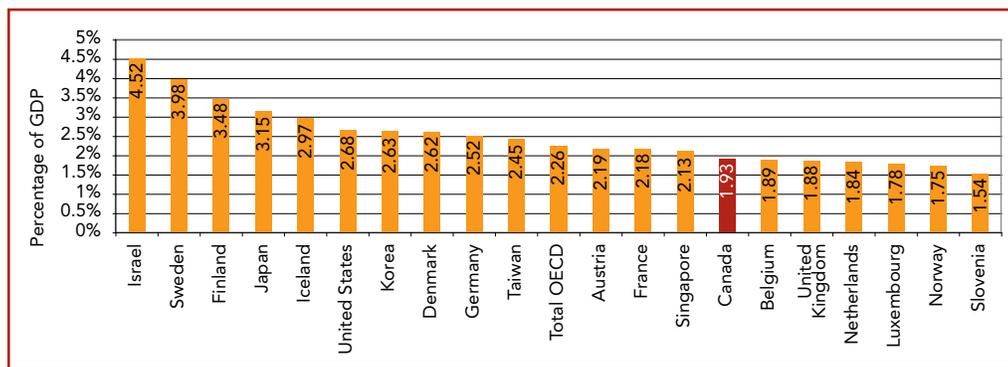


Figure Source: Sharpe, A. Challenges Facing Canada in the areas of Productivity, Innovation and Investment. Presentation to the Conference on Canada's Competitiveness and Prosperity, organized by the Institute for Competitiveness and Prosperity. Ottawa. p. 10.

Canada's proportion of GERD to GDP ranked 15th among OECD countries in 2005. Figure 4.2.1.1 was reproduced from a paper published in March 2006 by the Centre for the Study of Living Standards.³²

³¹ This is not meant to suggest that other dimensions of research are unimportant. One other measure of the quality and influence of research is provided by such measures as citations in scholarly journals. As noted by Arthur Carty, Science Advisor to the Prime Minister, "Canada ranks 6th in the world in its share of the top 1 percent of most frequently cited publications. And it is second only to the United Kingdom in the number of citations per researcher, citations per unit of GDP, and publications per researcher."

³² Sharpe, A. (2006). Challenges Facing Canada in the areas of Productivity, Innovation and Investment. Presentation to the Conference on Canada's Competitiveness and Prosperity, organized by the Institute for Competitiveness and prosperity. Ottawa. p. 10.

This ranking has not changed in recent years, despite Canada being the only G7 country to have increased its ratio of R&D expenditures to GDP in the 1990s. Canada continued to rank about even with the United Kingdom behind all other G7 countries, with the exception of Italy. Canada also trails non-G7 OECD countries such as Sweden, Finland and the Republic of Korea—competitor countries that in the past decade or so have focussed on R&D as a key driver of economic growth.

Within Canada, the concentration of R&D activities in Quebec and Ontario is striking, as shown in Figure 4.2.1.2.³³

The ratio of R&D expenditures to GDP was higher in Quebec and Ontario than in other jurisdictions, a reflection of the industrial structure of the Canadian economy. **At 2.70, Quebec's ratio was above the OECD mean. Most other jurisdictions in Canada devoted about 1% of their GDP to R&D activities.** In most provinces, the proportion of GDP devoted to R&D was higher in 2000 than during the early 1990s.

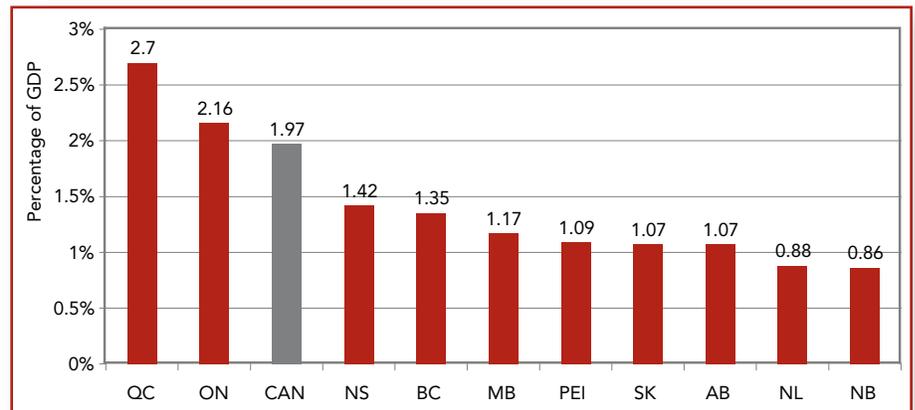
The 2005 Pan-Canadian Education Indicators Program (PCEIP) table shows changes in spending, and the mix of spending, on R&D.

Approximately 34% of GERD was performed by the higher education sector in Canada in 2003, compared to approximately 27% in Australia (2002), 21.5% in the U.K., 14% in the United States, 17% in Germany, and approximately 14% in Japan.³⁴

Despite increased R&D spending, Canada's comparative ranking slipped back to 15th during this period, because similar investment efforts were launched in other countries in the same time frame. Many other developed countries have established national R&D targets. OECD figures regarding such targets were collected in the AUCC *Momentum* report, as shown in the Table 4.2.1.2.³⁵

Although Canada has not set specific targets of this kind, Canada's overall GERD/GDP ratio increased from 1.68% to 2.08% between 1997 and 2001.³⁷ At the time, the OECD average was 2.28%. The Canadian ratio fell to 1.93% in 2004 as a result of a "downturn in the R&D investments in the domestic private sector and foreign investors."³⁸

Fig. 4.2.1.2 R&D intensity by province as a share of GDP, 2003



Note 1: Data for Quebec and Ontario exclude cities in the National Capital Region
 Note 2: Includes all sectors of funders and performers in the natural sciences, engineering, social sciences and humanities.
 Source: Sharpe, A. Challenges Facing Canada in the areas of Productivity, Innovation and Investment. Presentation to the Conference on Canada's Competitiveness and Prosperity, organized by the Institute for Competitiveness and Prosperity. Ottawa. p. 10.

Table 4.2.1.1 Expenditures on R&D, by sector (in millions of 2001 constant dollars, except 2005 figures*), and percentage change, Canada and provinces, 1994, 2000 and 2004

Jurisdiction and R&D contributing sector	1994 (\$)	2000 (\$)	2004 (\$)	2005 (Current dollar)	% Change 1994–2004*
CANADA, total	15,229	21,164	23,607	26,268	55
Governments, total	2,298	2,395	2,443	2,505	6
Federal government	2,001	2,133	2,109	2,138	5
Provincial governments	297	262	334	367	12
Business enterprises	8,638	12,769	12,738	13,848	47
Universities	4,195	5,942	8,360	9,841	99
Private non-profit	98	58	65	74	-34

Source: Statistics Canada. *Science Statistics*. Statistics Canada Catalogue no. 88-001-XIE. 2005.

* Canadian Council on Learning calculations

Table 4.2.1.2 National R&D targets (GERD to GDP)

Country/region	Target	Current GERD to GDP
Austria	2.5% by 2006	2.26% in 2004
Canada	no targets	1.93% in 2004
France	3% by 2010	2.16% in 2004
Germany	3% by 2010	2.49% in 2004
Korea	Double national R&D investments, 2003–2007	2.63% in 2003
United Kingdom	2.5% by 2014	1.88% in 2003
European Union	3% by 2010	1.91% in 2003 ³⁶

33 Ibid, p. 11.

34 OECD Science and Technology Statistics (2006). Main Science and Technology Indicators Vol 2006 release 01.

35 Association of Universities and Colleges of Canada (2005). *Momentum*. The 2005 Report on University Research and Knowledge Transfer. Ottawa. p 11.

36 CCL's revision based on OECD Main Science and Technology indicators 2005.

37 CCL's revision based on OECD Main Science and Technology indicators 2005.

38 Association of Universities and Colleges of Canada (2005). *Momentum*. The 2005 Report on University Research and Knowledge Transfer. Ottawa. p. 33.

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4.2.2 HIGHER EDUCATION EXPENDITURES ON R&D (HERD) AS PERCENTAGE OF GDP

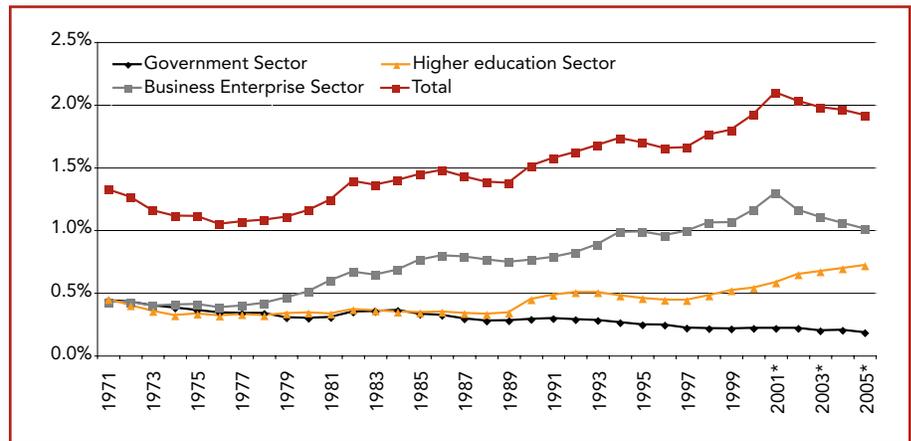
» HERD plays a more significant role in Canadian R&D than in other jurisdictions, and is the major source of substantial R&D in many provinces.

Research and development are usually divided according to the source of expenditure. Investments by post-secondary institutions (PSIs) are described as higher education expenditures on R&D, or HERD—as a subset of GERD.

Canada’s PSIs play a far greater role in R&D than in most other developed countries. The university sector is the second-largest contributor of R&D after business. In most provinces, universities have a clear mandate to pursue research as a fundamental part of their endeavours. In many provinces, colleges and institutes also engage primarily in applied research, for the most part focussed on more “applied” than “basic” research.³⁹

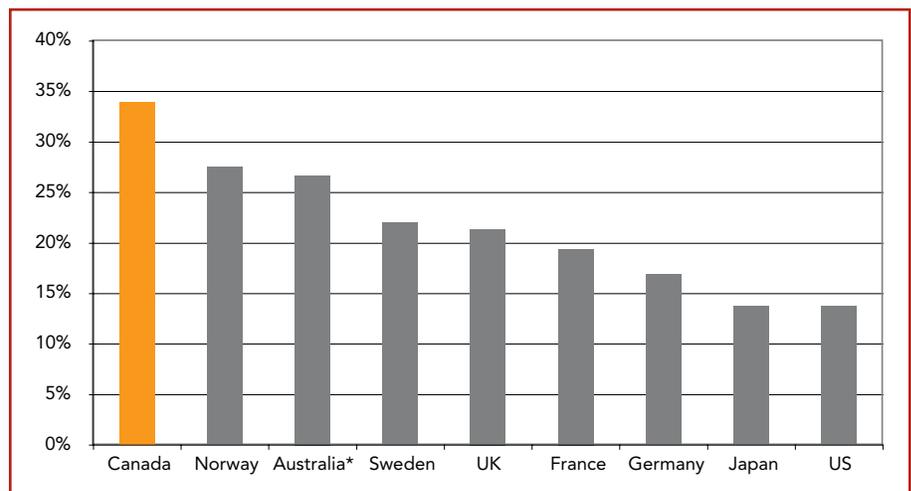
Canada ranks high in international comparisons of HERD, because Canada depends more on its higher education institutions for R&D activities than other OECD members. Conversely, business expenditures on R&D lag significantly behind those of countries of comparable levels of economic development.

Fig. 4.2.2.1 **Canada R&D expenditures by performer (1971–2005) as share of GDP**



Source: Statistics Canada. *Science Statistics*. Statistics Canada Catalogue no. 88-001-XIE. 2005.
 * CCL’s calculations based on Statistics Canada. n.d. Gross Domestic Product, Expenditure-based (table). Canadian Statistics. Version updated May 31, 2006. <http://www40.statcan.ca/101/cst01/econ04.htm> accessed July 11, 2006.

Fig. 4.2.2.2 **Percentage of GERD performed by higher education sector for selected OECD countries 2003**

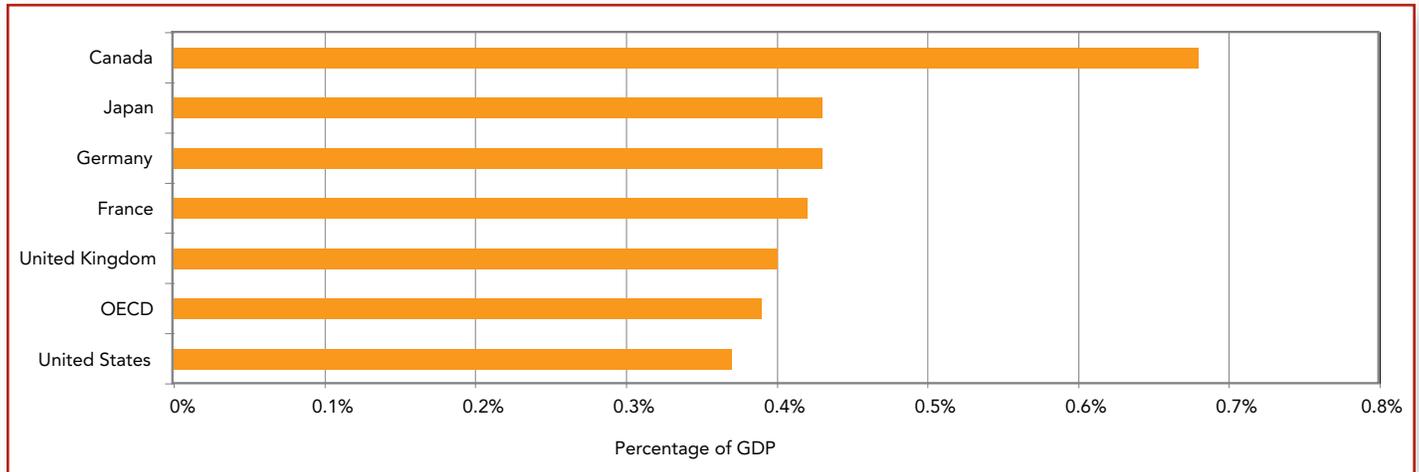


*Data for 2002.
 Source: OECD Science and Technology Statistics (2006). Main Science and Technology Indicators Vol. 2006 release 01.

³⁹ ACCC’s Draft report on Applied Research at Canadian Colleges and Institutes, May 2006, notes that “colleges’ and institutes’ role in applied research is reflective of their mandate to contribute to community and regional development. As such, research is initiated and conducted in response to the needs of industry and community partners... [C]ollege and institute research is driven from market pull, or the demand side, from the users of technology or knowledge who need to improve, refine or adapt technology, or improve on procedures, policies or approaches to meet client needs. As a result, colleges and institutes are more at the development, commercialization and knowledge transfer stages of research.” P. viii.

Dr. Arthur Carty, Science Advisor to the Prime Minister, employed chart 4.2.2.3 in a presentation in New York in December 2005. It illustrates Canada's support for university R&D.

Fig. 4.2.2.3 **Higher education expenditures on R&D as a percentage of GDP (2003)**



Source: OECD Science and Technology Statistics (2006). Main Science and Technology Indicators Vol. 2006 release 01.

4.2.3 PSE ENROLMENT AND GRADUATES IN MATH, PHYSICAL SCIENCES, ENGINEERING AND COMPUTER SCIENCE

» Over the past decade, the overall production of graduate degrees in Canada has increased.

Direct investments in R&D represent only one dimension of innovation. Equally important is the assurance of a steady and adequate supply of people with the necessary skills and knowledge to create new products and services.

In the European Union, the governing Council considers that "an adequate supply of scientists is crucial for a knowledge-based economy."⁴⁰ The Council has therefore set two specific benchmark objectives for the number of graduates in mathematics, science and technology to "bring about an increase of at least 15% in the number of graduates in these fields by 2010 and at the same time to redress the imbalance between men and women."⁴¹ Canada has failed to establish comparable goals or targets, despite its identical dependence on creative workers and engaged citizens.

The EU and other jurisdictions often focus on the natural sciences, mathematics, engineering and technology fields because of their close links to innovation. It

is clear, though, that research in the social sciences and humanities contributes significantly to a better understanding of the dynamics of human behaviour. Social sciences and humanities are also viewed by many policy-makers and funders as critical to innovation and productivity. Undergraduate-level enrolments in these fields are important because they provide the *feeder group* for advanced degrees.⁴² The heightened emphasis on the production of advanced degrees—master's and doctorates—is due to the fact that they support the intensive and focussed research that leads to knowledge creation, transfer and application.

Between 1993 and 2003, there was a dramatic rise in the number of graduate degrees awarded in Canada. There were 235,000 master's degrees, and 38,000 doctorates awarded during this period—an increase of almost 38% in master's, and 50% in doctoral degrees. This compares with 1.29 million bachelor's degrees awarded during this period, an increase of 21%.

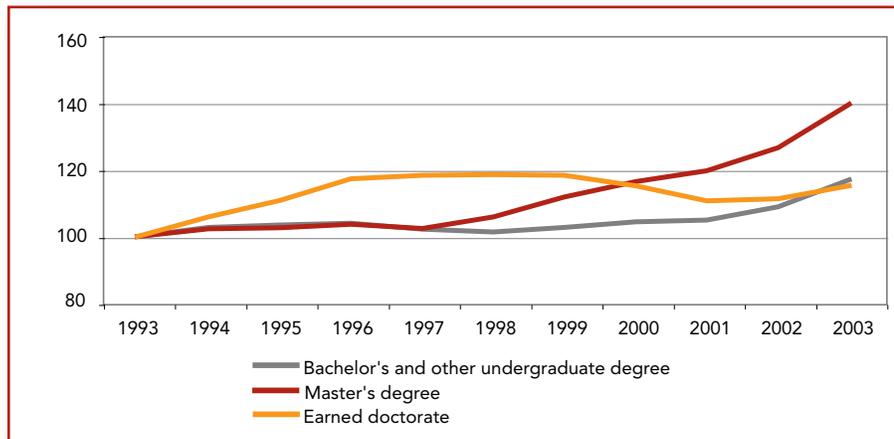
40 Commission of the European Communities (2005). Progress Towards the Lisbon Objectives in Education and Training. 2005 Report. Commission Staff Working Paper. p. 5.

41 Ibid. p.5.

42 It is important to track the potential "feeder group" even farther, to assess trends among secondary school students who take advanced courses in mathematics and science, often required for enrolment in such fields in post-secondary institutions. A series of articles in Statistics Canada's Education Quarterly Review (see <http://www.statcan.ca/english/freepub/81-003-XIE/0010181-003-XIE.pdf>) attempts to track feeder groups at various levels in the education process, putting together various datasets to provide such a picture.

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Fig. 4.2.3.1 Change in the number of degrees awarded in Canada, between 1993 and 2003 (1993=100)



Source: Statistics Canada. Enhanced Student Information System

Singling out the fields of natural sciences and engineering (NSE), NSERC figures indicate that full-time enrolment in Canada's master's and doctoral programs grew between 1992–2003 and 2001–2002.⁴³

- Natural sciences and engineering enrolment for first degrees grew from one-fifth to almost one-quarter of the total full-time enrolment.
- At the level of master's degrees, NSE enrolment grew from 31.6% to 33.1% of the total.
- At the doctoral level, however, enrolment—while growing slightly in numbers—slipped in its proportion to overall doctoral enrolment from 48.2% to 42.9%.

Major growth at the level of master's programs was seen in the fields of engineering and computer science, and life sciences, both of which increased at an annual rate of 2.9%. In mathematics and the physical sciences, master's enrolment grew at an annual rate of only 0.7%. In 2001, natural science and engineering represented around 23% of all granted master's degrees—unchanged from 1991.

- Canada is lagging in the production of graduates at the doctorate level of key scientific and technical disciplines.

Although more doctorates are being awarded in Canada, it still lags other countries. Enrolment in math, engineering and physical and computer sciences declined at the doctoral level. The number of doctorates in these fields fell from 52% of total doctorates awarded in 1991 to 47% in 2001.

43 NSERC Facts and Figures 2004-05, Table 43.

44 Council of the Federation discussion paper. February 2006. Derived from NSERC Facts and Figures 2004-05, Table 44, p. 86.

45 OECD (2005) Education at a Glance: 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 age is the age that normally corresponds to the age of graduation. (Note that at some levels of education the term "graduation age" may not translate literally and is used here purely as a convention.) p. 407.

The Premiers noted in their February 2006 discussion paper that Canada is well below the OECD average in the production of doctorates which represents "a significant impediment to the country's future ability to innovate and compete. Improving our ability to produce doctorate degree holders will help Canada prepare the next generation of professors, researchers and innovators."⁴⁴

Table 4.2.3.1

Percentage of tertiary graduates to the population at the typical age of graduation⁴⁵

	DOCTORATE
Germany	2
Australia	1.3
Canada***	0.9
United States*	1.3
Finland**	1.9
France**	1.4
United Kingdom	1.6
Sweden	2.8
OECD avg. (17 countries)	1.2

* 2000 data

** 2001 data

*** 2003 data

Source: Council of the Federation, February 2006.

http://www.competingfortomorrow.ca/en/_pdf/CFT_DiscussionGuide_v6E.pdf (accessed July 11, 2006)

- Women are still under-represented in graduate programs in many science and engineering disciplines, and in doctoral programs.

Female enrolments in both master's and doctoral programs grew sharply in all NSE fields. However, this growth occurred within the context of male-dominated enrolments in all fields except for master's level programs in the life sciences. Overall, males still outnumbered females at the master's level by 60% and at the doctoral level by more than double.

An analysis of the number of degrees granted in these fields—completion rather than enrolment—reveals the gender distribution pattern is much the same.

Table 4.2.3.2 **Number of degrees granted in engineering/computer science and math/physical sciences, master's and doctorates, 1993 and 2003**

	ENGINEERING & COMPUTER SCIENCE*			MATH AND PHYSICAL SCIENCES**		
	# granted	% of total degrees	% of male	# granted	% of total degrees	% of male
Masters						
1993	2,315	11.1	84.2	910	4.4	70.9
2003	3,930	13.5	74.8	1,110	3.8	61.3
Doctorates						
1993	585	17.4	91.5	550	16.4	83.6
2003	620	16.1	83.9	470	12.2	78.7

Data source: Enhanced Student Information System, Statistics Canada.

*Computer science: computer and information sciences and supported services

**Math: mathematics and statistics.

4.2.4 RESEARCHERS AND R&D PERSONNEL

» Canada is in the middle ranks in terms of researchers and R&D personnel as a proportion of total employment.

One method to assess an economy's potential for innovation is to examine the number of employees per thousand engaged in research activities. In 2002, when Canada was compared to other OECD countries, it ranked behind Sweden, Japan, U.S., Norway, Australia and France, and just ahead of Germany, the U.K. and Italy.⁴⁶

When viewed in terms of *R&D personnel*, rather than *researchers*, as a proportion of total employment, Canada again leads Italy, but is even with Australia and

trails Sweden, France, Japan, Germany and Norway (no data reported for the U.S.).⁴⁷

A Statistics Canada study published in mid-2005⁴⁸ tracked the extent to which the number of R&D personnel changed between 1993 and 2002. It noted that the numbers grew only in the business enterprise sector, remained flat in the higher education sector and fell in both federal and provincial governments sectors.

Table 4.2.4.1 **Personnel engaged in R&D, by sector of performance, 1993 to 2002**

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	% Change (1993-2002)
Government*	20,950	20,180	18,780	17,720	16,920	16,580	16,860	17,830	16,920	17,250	-11.3%
Business enterprise	61,530	78,880	82,010	79,340	82,690	85,990	90,890	104,030	115,050	111,800	81.7%
Higher education**	43,670	43,460	43,020	45,430	44,920	44,320	44,590	45,150	46,300	47,340	8.4%
Private non-profit organizations	1,090	1,110	1,160	1,230	1,210	1,040	860	850	710	730	-33.0%
Total	127,240	143,630	144,970	143,720	145,740	147,930	153,200	167,860	178,980	177,120	39.2%

Source: Statistics Canada (2005). Research and development (R&D) personnel in Canada, 1993-2002. Science Statistics Service Bulletin, Vol. 29, No. 2. Science, Innovation and Electronic Information Division. Catalogue no. 88-001-XIE. Ottawa.

*Includes federal and provincial governments.

** The PSE sector experienced budgetary constraints between 1994 and 1999, which affected the number of teaching and research personnel.

46 NSERC Facts and Figures 2004-05, figure 90, p. 45.

47 Ibid, figure 91, p. 46.

48 Statistics Canada (2005). Research and development (R&D) personnel in Canada, 1993-2002. Science Statistics Service Bulletin, Vol. 29, No. 2. Science, Innovation and Electronic Information Division. Catalogue no. 88-001-XIE. Ottawa.

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Canada recognizes the necessity of investing in advanced research to create a high-performance economy and strong society. To improve Canada's performance in post-secondary education in R&D, the federal government launched a series of initiatives in the late 1990s designed to make Canada's university-based research and innovation system among the world's best. These initiatives included the Network of Centres of Excellence, the Canada Foundation for Innovation (CFI), Canada Research Chairs, a graduate scholarship program, increases to federal granting councils and federal funding support for the indirect costs of research. Additional initiatives by several provinces and universities to increase funding are further indications of the commitment to R&D in Canada.

Many of these initiatives aim to increase the numbers of highly qualified personnel in key areas. Early evaluations of several initiatives demonstrate positive change in the number of graduates, as noted above.⁴⁹ Longer-term

evaluation is required to provide a better assessment of impacts, given the time lag involved between the provision of such supports and the realization of benefits through the work of new researchers.

Concerns have been expressed in recent years about the *brain drain* of highly educated Canadians migrating to other countries. In 2005,⁵⁰ Statistics Canada reported on the results of The Survey of Earned Doctorates. It was discovered that 80% of those who graduated with a doctorate between July 1, 2003 and June 30, 2004 intended to remain in Canada in the year following graduation. Only about 8% of graduates who intended to leave Canada reported that they had no plans to return. Almost half, however, indicated that they did plan to return, while about one-third could not say. Among foreign students admitted to study at a Canadian university just over 60% reported that they expect to remain in Canada.⁵¹

4.2.5 LICENSES, PATENTS AND START-UP COMPANIES

» In recent years, there has been increased emphasis on commercialization of PSE research and development.

Given the connection between technology, innovation and productivity, it is useful to examine the results of research in terms of its industrial application or "commercialization."

PCEIP data show that:

"Universities in Canada have created a cumulative total of 454 spin-off companies (by 1999 only 26 of these had been closed). These companies generate economic benefits to both the universities, through equity holdings, and society as a whole, by creating employment and generating taxable revenues. Note that these 454 spin-off companies reflect only those that have been started in formal arrangements with the university. They do not include other spin-off companies such as those started independently by university faculty or students."⁵²

Recent research conducted by ACCC among a sample of colleges and institutes also revealed that applied

research in those institutions has begun to pay off in terms of commercialized applications such as patents and spin-off companies.⁵³

PCEIP also notes the different approaches taken in different provinces:

"There are regional differences in how inventions are brought to market. Quebec universities tend to license their inventions rather than create new companies, as they account for 22% of active licenses executed by universities in Canada but only 9% of all spin-off companies based on university R&D. This pattern also applies to universities in the Prairie provinces. In contrast, there seems to be a tendency towards the creation of spin-off companies rather than licensing in British Columbia, Ontario and Atlantic Canada. The apparent preference in British Columbia for the creation of spin-off companies may be due in part to the types of technologies created there."⁵⁴

49 Canada Foundation for Innovation reports that since 2000, nearly 7,200 researchers cited research infrastructure as an important factor in their decision to stay in Canada or to come to Canada from abroad, "with nearly 1,470 coming from the U.S. and 1,230 from other countries." Evaluation of the Network of Centres of Excellence reports that almost 12,000 researchers and highly qualified personnel such as research associates and technicians, postdoctoral fellows and graduate students have been involved in NCE projects.

50 Gluszynski T. & Peters V. (2005) Survey of Earned Doctorates: A Profile of Doctoral Degree Recipients. Statistics Canada. Culture, Tourism and the Centre for Education Statistics Division, Catalogue no. 81-595-MIE.

51 Ibid.

52 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, 2003, Catalogue no. 81-582-XIE. Ottawa. p.133.

53 ACCC. Applied Research at Canadian Colleges and Institutes. May 2006. p. 39.

54 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, 2003, Catalogue no. 81-582-XIE. Ottawa. p.133.

The *AUCC Trends* document⁵⁵ draws on research conducted by Bruce Clayman, as shown in Table 4.2.5.1.

Table 4.2.5.1 **Comparison of Canadian and U.S. commercialization results**

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

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

Prime Minister's Science Advisor, Dr. Arthur Carty cited AUCC's commitment to triple commercialization activities by 2010, and presented these recent enhancements:

Table 4.2.5.2 **Universities increasing their commercialization capacity**

INDICATOR	1999	2003	% 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 licenses	232	422	82
Value of industrial research contracts	\$153.8 million	\$283 million	84

Source: Association of Universities and Colleges of Canada. *Momentum. The 2005 Report on University Research and Knowledge Transfer*. Ottawa. 2005.

4.2.6 CONTRIBUTION TO PRODUCTIVITY

» The gap between Canadian and U.S. R&D intensity is unambiguous but its impact on the overall productivity gap is not so clear.

The previous chapter explored the contribution of human capital to productivity. Another key factor is technology and innovation resulting from R&D. Science and technology enhance productivity growth, which is "the main determinant of the prosperity and standards of living in the long run."⁵⁶

As with human capital, efforts have been made to get beyond global correlations and clarify the specific contribution of new knowledge to productivity. One study by Statistics Canada in 2004 tracked innovation in Canadian manufacturing firms between 1988 and 1997, and found that "investment in R&D, competencies and past innovation activities are the three main factors affecting innovation outcomes."⁵⁷

A 2001 study for Finance Canada⁵⁸ examined whether the productivity gap between Canada and the U.S. might be explained by under-investment—in physical, human and R&D capital combined.

With respect to R&D, the data make it "clear... that Canada lags considerably behind the United States. The number of researchers relative to the labour force is significantly higher in the U.S. (74 per 10,000 compared to 54 per 10,000 in Canada), and domestic expenditure on R&D is 2.8 per cent of GDP compared to 1.6 per cent in Canada."⁵⁹ The authors of a Department of Finance working paper conclude, however, that this is unlikely to explain much of the productivity gap.

There are also significant questions as to whether R&D drives economic and industrial growth, or the reverse.

The concentration of business R&D in central Canada is largely determined by the industrial structure of the Canadian economy. It is also more difficult for small- and medium-sized enterprises (SMEs) to fund research and development. Newly emerging areas of technology appear to have the highest probability of R&D driving new economic ventures through spin-offs and other commercialized applications of PSI research.

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

56 Statistics Canada (2004). *Innovation Analysis Bulletin* (2004). Science, Innovation and Electronic Information Division. Vol. 6 No.3. Catalogue No. 88-003-XIE. Ottawa.

57 Ibid.

58 Rodriguez E. R. & Sargent T. C. (2001). *Does Under-Investment Contribute to the Canada-U.S. Productivity Gap?*. Department of Finance Working Paper 2001-11, Government of Canada.

59 Ibid. p.18.

4.3 Conclusions

4.3.1 THE EXTENT TO WHICH OBJECTIVES ARE BEING MET

1. Despite an aggressive R&D agenda pursued in Canada over the last decade, expenditures on R&D as a percentage of GDP have stalled at 15th place in the OECD, and remain below the OECD average.
2. Given the concentration of private sector R&D in central Canada, HERD is basically the only option in many provinces.
3. The failure to produce enough new doctorate graduates is a major obstacle to future innovation for two reasons: Canada will have an inadequate supply of the highly qualified personnel needed to stimulate innovation; and there will be an insufficient number of PhDs to replace retiring professors and researchers in post-secondary institutions.

4.3.2 WHAT WE NEED TO KNOW NEXT ABOUT R&D AND KNOWLEDGE TRANSFER

1. Canada-wide, policy-relevant indicators for outcomes and impacts of R&D must be developed. This is essential to support monitoring, benchmarking and evaluation of policies and programs, and to compare Canada's innovation performance with that of its global competitors.
2. Mechanisms must be developed to measure the impacts of major public investments in R&D (e.g. CFI, Canada Research Chairs, graduate scholarships, etc.) The long-term effects of these initiatives must be understood fully in terms of performance and progress, and whether Canada is getting value for money.
3. The benefits and impacts of knowledge transfer from PSE to industry need to be assessed. Currently, there is no way to gauge whether new knowledge being generated in university and college labs is being applied in the private sector through patenting and licensing—both indicators of innovation and commercialization. The chain of events from laboratory to discovery to industrial application, and the role of post-secondary institutions in that process, needs to be documented with data consistently collected and analyzed.

4.3.3 A POSITIVE RECORD – AN UNCERTAIN FUTURE

A positive record

Federal and provincial governments recognized the need to improve Canada's R&D performance in 2001, when they agreed to work together to move Canada from 15th place to one of the top five OECD countries for research intensity. While Canada still occupies the same place in the OECD ranking, governments, both federal and provincial, did increase their support for R&D from \$2,298 million in 1993 to \$2,505 million in 2005. There has also been an increase over the past decade in the overall production of graduate degrees in Canada.

An uncertain future

Canada will not reap the full benefits of R&D investment unless post-secondary institutions produce enough highly qualified personnel to meet the needs of industry, government and academe. To remain competitive in knowledge creation, transfer and innovation, Canada must set and meet benchmark objectives—similar to the EU—and increase the number of graduates in mathematics, science and technology.

International comparisons underscore the fact that Canada's relatively low rates of business expenditure on R&D leave us in the middle ranks for R&D intensity—and at serious risk of falling further behind in an aggressive global marketplace. Canada must follow the example set by European countries, and set and meet targets for GERD as a percentage of GDP. For example, in 2003, the GDP share of total funding for research in Finland was 3.5%. The EU has set a target of 3% by 2010. Establishing a similarly challenging benchmark might enable Canada to keep pace with international competitors. In order to meet this target, substantial enhancement of R&D performance in the private sector—as well as PSIs—will be required.

Canada depends more on the post-secondary sector for R&D than do most other developed countries. It also depends on the production of master's and doctoral graduates which are significant resources that are at the service of government and the private sector. As some provinces are almost entirely dependent on HERD, continued strong support for R&D activities in post-secondary institutions is vital if Canada's economy is to be innovative and competitive in the 21st century.

ACTIVE, HEALTHY CITIZENRY

5.1 Introduction

Previous chapters of this report have examined the economic benefits of post-secondary education for the individual and for the country. Research is just beginning to explore—from an evidence-based perspective—the social benefits of PSE, which are the focus of this chapter. Few direct indicators exist at this time, but available data show a correlation between higher levels of educational attainment and a variety of characteristics that affect the quality of life of individuals and communities—everything from employment rates, crime rates, teenage pregnancies, civic engagement, social cohesion and appreciation of diversity, to healthier lifestyles.

PSE institutions have long been viewed as valuable community assets in part because of the prestige and high-paying jobs they bring. However, there is growing awareness that the local citizenry’s level of education has a broad impact on the social success and stability of the community. PSE attainment may also play a part in establishing conditions conducive to the creation of learning communities, which are central to economic success in the 21st century.

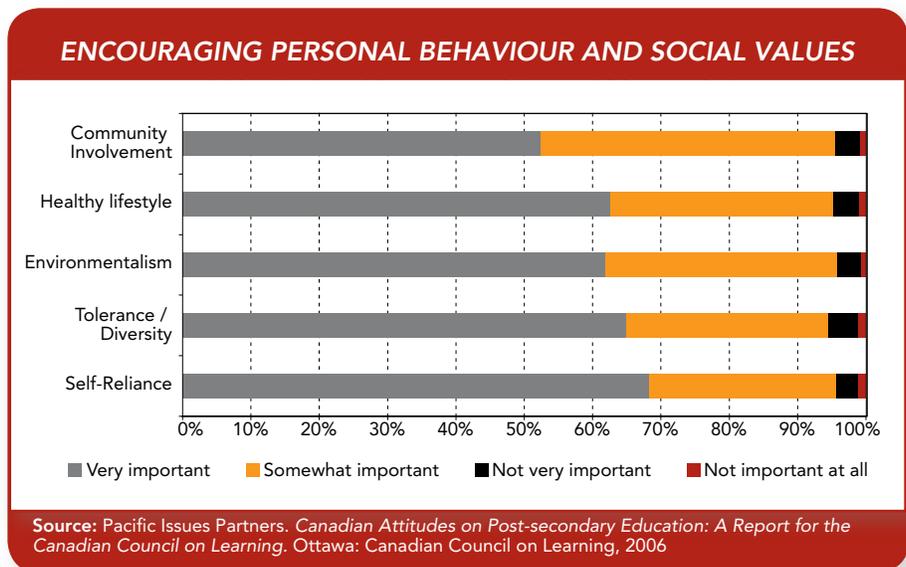
The term *learning community* is being adopted in many circles to denote the evolution of our society and communities, in response to the demands of globalization and the consequences of technological advances. Several business/service plans for provincial post-secondary ministries include mission statements that reference social and individual goals, including: opportunities for personal fulfilment; a productive, prosperous society; and the development of an educated citizenry. However, indicators to measure progress in achievement of these goals are limited.

Availability of reliable and meaningful data is a major challenge. Although statistical information is scarce, there is recognition both nationally and internationally of the need for further analysis in this area.

CANADIAN ATTITUDES TOWARD PSE COMPARING RESPONSES TO TWO VIEWS OF EDUCATION		
	General skills—work in teams, problem solve, communicate—more important (%)	University education good in itself, whether or not leading to a job (%)
Strongly Agree	16	28
Somewhat Agree	49	60
Neutral	7	2
Somewhat Disagree	26	9
Strongly Disagree	3	1

Source: Pacific Issues Partners. *Canadian Attitudes on Post-secondary Education: A Report for the Canadian Council on Learning*. Ottawa: Canadian Council on Learning, 2006

This chapter highlights citizenship and health indicators as a proxy for social benefits—or *social capital*. Evidence is cited to demonstrate that a more knowledgeable citizenry tends to participate more actively in the building and functioning of communities.



5.2 What we know now

The debate continues concerning correlation versus causation of PSE and social factors—whether higher levels of PSE correlate with positive social outcomes because of inherent underlying characteristics of individuals, or whether higher levels of education result in increased benefits. There is recent evidence that higher levels of education result in a variety of social benefits/outcomes.⁶⁰

The social benefits have significant intergenerational impacts. For example, the impact of parental education on children is strong for both social and economic benefits. The economic benefits related to standard of living are clearly understood, but the social impacts on such factors as teenage pregnancies, child abuse and neglect, performance in schools and in labour markets, contacts with the justice system and intervention programs are also pronounced.⁶¹ These family benefits obviously translate into positive outcomes for communities and society.

This report uses indicators that demonstrate the relationship between post-secondary education and some citizenship-related activities of residents and communities. The report also recognizes that a

few measures do not do justice to the complexities of citizenship and learning communities.

The indicators were chosen for several reasons. First, active citizenry, such as volunteering, plays a vital role in defining a community and giving residents a collective sense of well-being. Health outcomes data are a useful indicator of quality of life. Another practical reason for choosing these indicators is their availability. The spotlight on health issues in the last few years, for example, has generated additional health data.

The following indicators have been selected to illustrate the individual and community benefits of post-secondary education:

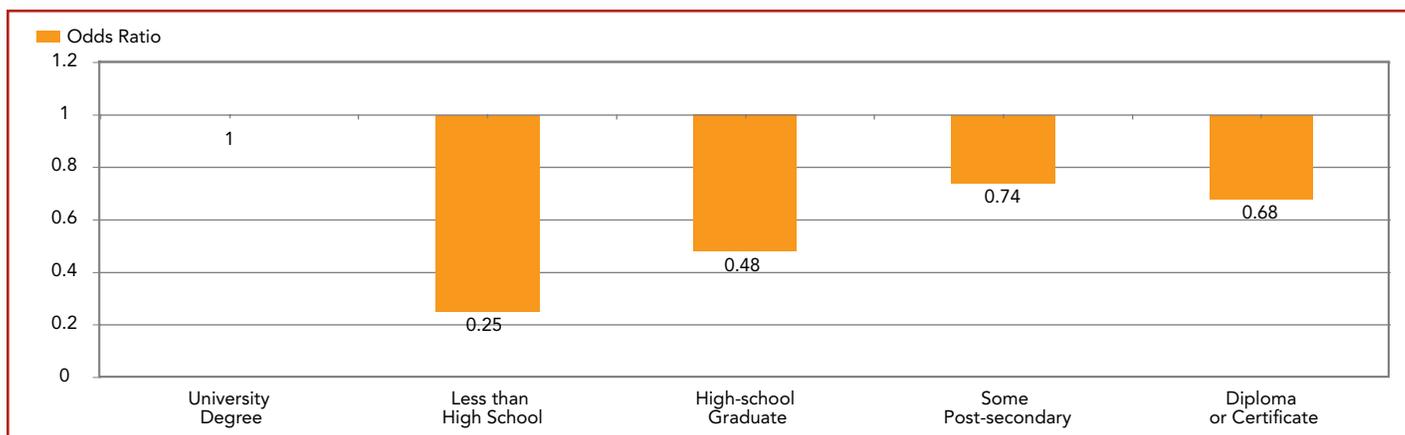
- Active citizenship as demonstrated in voting behaviour
- Active citizenship as demonstrated through volunteering and giving
- Health outcomes
- More tolerant attitudes toward diversity and stronger social cohesion

5.2.1 ACTIVE CITIZENSHIP—VOTING

» Voting behaviour is strongly related to education.

The likelihood of 20- to 29-year-olds voting in the 2000 federal election is shown to be highest for those with some post-secondary or a post-secondary education diploma or certificate.

Fig. 5.2.1.1 Likelihood of 22- to 29-year-olds voting in last election, prior to 2003



Source: Milan, A. (Winter 2005). Willing to participate: Political engagement of young adults. Canadian Social Trends. Number 70. Statistics Canada Catalogue no. 11-008.

60 Riddell C. (2006). The Impact of Education on Economic and Social Outcomes: An Overview of Recent Advances in Economics. CPRN's Skills and Knowledge for Canada's Future: Seven Perspectives - Towards an Integrated Approach to Human Capital Development project. p. 19.

61 Ibid.

Analysis of voter turnout in Canada demonstrates a particularly significant reduction in voting among Canadians with less than university education.⁶² “According to Blais et al, turnout in the 2000 election was almost 50% higher among university graduates born after 1970 than among those in the same age cohort that had not completed high school.”⁶³

Other factors appear to influence voting behaviour. Recent international studies by Milligan, Moretti and

Orepoulos (2003)⁶⁴ find that having a higher level of education raises the probability of voting—although their study shows that high-school graduation raises the probability of voting by close to 30% in the U.S. and only 9% in Canada. A higher education level also increases the frequency of newspaper readership, discussion of current events and participation in political meetings and events.

5.2.2 ACTIVE CITIZENSHIP—VOLUNTEERING AND GIVING PATTERNS

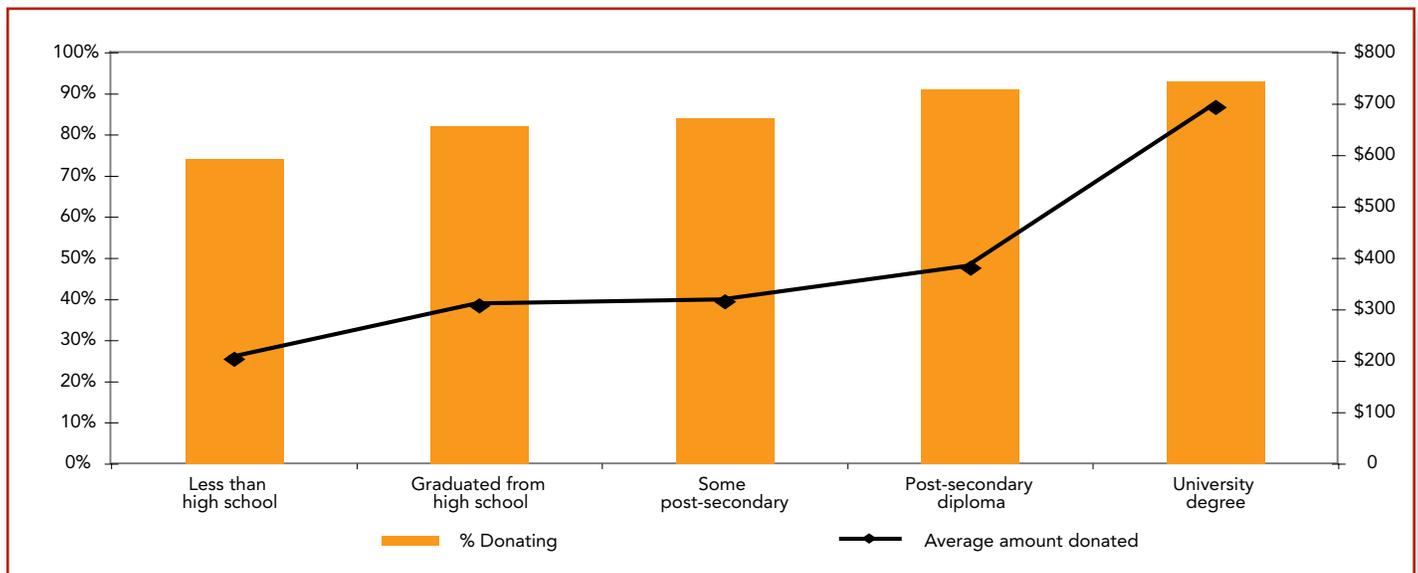
» Volunteering, giving and participating in civil society increases with level of education.

Statistics Canada’s surveys measuring donation rates and the average amount donated by level of education show the donor rate of people with less than high-school education is under 75%, while more than 80% of those who have completed high school or have a PSE diploma or degree donate to charity. The donation amount rises significantly for those with a university degree.

associated with educational attainment. However, the data also show that those who have 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. The percentage of people who volunteer almost doubles when comparing university graduates with those with less than high school.

This result may simply reflect the ability, rather than the propensity to donate, since income levels are closely

Fig. 5.2.2.1 Percentage of donating and average amount donated, 2004



Source: Statistics Canada: *Caring Canadians Involved Canadians: Highlights from the 2004 Canada Survey of Giving, Volunteering and Participating*. Catalogue no. 71-542-XPE. 2006.

62 O’Neil, B. (2006). *Human Capital, Civic Engagement and Political Participation: Turning Skills and Knowledge into Engagement and Action*. CPRN’s Skills and Knowledge for Canada’s Future: Seven Perspectives - Towards an Integrated Approach to Human Capital Development.

63 Ibid. p.11.

64 Milligan, K., Moretti, P. & Orepoulos, P. (2003). *Does Education Improve Citizenship? Evidence From The U.S. and The U.K.* National Bureau of Economic Research. Working Paper 9584. Massachusetts.

ACTIVE, HEALTHY CITIZENRY

5.2.3 HEALTH OUTCOMES

» Health indicators are higher for people with higher levels of education.

People with higher levels of education report higher perceptions of good health. Interestingly, the self-reported perception of 'excellent or very good health' has decreased somewhat between 2001 and 2003. Of course, the relationship between health and level of education is likely not as straightforward as presented in the data below.

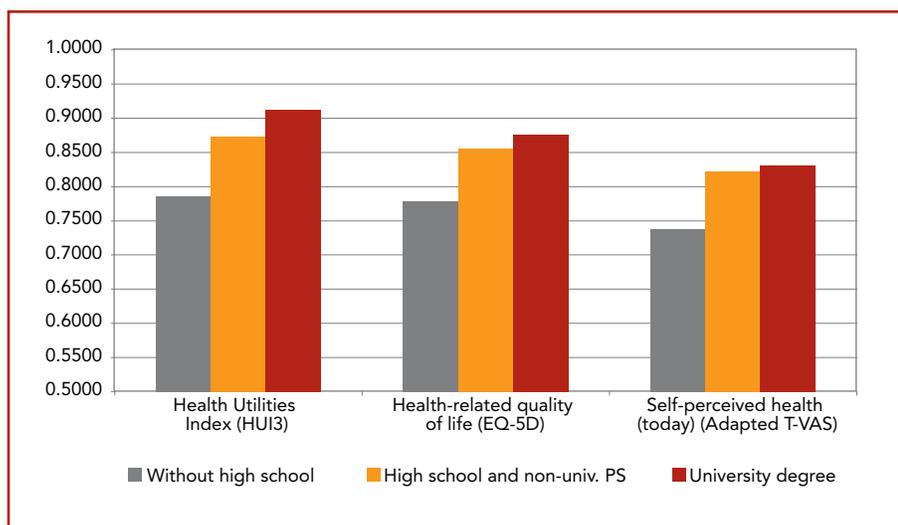
Table 5.2.3.1 **Self-perceived health status by educational level, Canada, 2001, 2003, 2005**

EDUCATION	SELF-PERCEIVED HEALTH								
	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%	23.11%	6.9%	65.7%	27.2%	7.1%	66.9%	25.8%	7.3%

Source: Canadian Community Health Survey cycle 2.1 and 3.1 (2003 and 2005 respectively). Percentages may not add up to 100% because they do not include the "Don't Know" and "Refusal" responses.

Other health indicators show similar trends, with health-related quality of life and the health utilities index increasing for those with higher levels of education.

Fig. 5.2.3.1 **Mean health outcome by education, 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.

These results support U.S. studies that conclude higher levels of education have causal, not just correlation, effects on health. In addition to a strong personal benefit, better health likely translates into the social benefit of less reliance on publicly funded health care.⁶⁵

The Public Health Agency of Canada (PHAC) has identified education and literacy as key determinants that influence health. PHAC has published supporting material from the *Second Report on the Health of Canadians and Investing in the Health of Canadians* on its website.⁶⁶ The evidence includes income, unemployment rates, health status, lifespan, smoking habits, physical activity and absences at work.

65 Riddell C. (2006). *The Impact of Education on Economic and Social Outcomes: An Overview of Recent Advances in Economics*. CPRN's Skills and Knowledge for Canada's Future: Seven Perspectives - Towards an Integrated Approach to Human Capital Development project.
 66 http://www.phac-aspc.gc.ca/new_e.html

HOW PSE BENEFITS CANADA AND CANADIANS

A paper from the 2002 Conference on Social Determinants of Health Across the Life-Span highlights the effect of low levels of education on health. "People with low levels of education suffer poorer health and well-being. Compared to non-graduates, high-school graduates:

- use preventative medical services 11% more frequently
- make 2% fewer multiple visits to doctors
- have 23% better knowledge of health behaviours
- have 13% better general health status

- have 26% better family functioning (Federal, Provincial and Territorial Advisory Committee on Population Health, 1999)."⁶⁷

The Institute of Health Promotion Research at UBC has developed a synthesis paper (2003) on the conceptualization and measurement of community capacity that outlines a framework based on three levels: individual, organization and community. This framework provides a valuable starting point for further work by identifying 83 specific characteristics of community capacity.

5.2.4 MORE TOLERANT ATTITUDES TOWARD DIVERSITY AND STRONGER SOCIAL COHESION

» More open-minded attitudes and tolerance of diversity are linked to higher education.

Canadians pride themselves on strong values of equality, openness and inclusion. The contributions of education to the development of these characteristics have long been recognized, even if they are difficult to quantify. Economist Craig Riddell estimates that the benefits of high levels of education to individual well-being and community capacity "may be similar in magnitude to the private benefits associated with higher lifetime earnings, which are in the range of 7–10 per cent."⁶⁸

Education appears to be positively correlated with reduced alienation and social inequalities. The impacts are intergenerational. Bloom and Rosovsky state: "By exposing students to a wide range of differing views and encouraging them to make connections across different disciplines and cultures, we would hope that liberal education promotes tolerance and understanding of others."⁶⁹

During an address to the 2004 Dublin Meeting of OECD Education Ministers, Robert Putnam stated, "For any government concerned to increase social capital and social cohesion, the educational process is the single most

important and effective policy lever."⁷⁰ His conclusion was that the single best predictor of high social capital is years of formal education.

In the absence of benchmarks, one way to measure how PSE contributes to social cohesiveness is to survey public perceptions. CCL's recent poll on public attitudes toward PSE found Canadians are aware of the role their PSE institutions play in encouraging community and societal values. More than half of those polled gave the sector a positive rating.

In response to the question, "And overall, are the colleges or universities in your area doing an excellent, good, fair or poor job at encouraging these sorts of values (involvement in community; tolerance and openness to diversity; encouragement of healthy lifestyles; self-reliance and independence; environmental awareness)," the results showed 56% of Canadians thought colleges or universities in their areas were doing an excellent or good job, while 33% thought they were doing a fair or poor job.

⁶⁷ Ungerleider C. & Keating D. (2002). Education as a Determinant of Health. Paper presented at The Social Determinants of Health Across the Life-Span Conference. Toronto.

⁶⁸ Riddell C. (2006). The Impact of Education on Economic and Social Outcomes: An Overview of Recent Advances in Economics. CPRN's Skills and Knowledge for Canada's Future: Seven Perspectives - Towards an Integrated Approach to Human Capital Development project.

⁶⁹ Bloom, D. & Rosovsky, H. (Winter 2003). Why Developing Countries Should Not Neglect Liberal Education. *Liberal Education*, vol. 89, No. 1, pp.16-23.

⁷⁰ Putnam, R. (2004). Education, Diversity, Social Cohesion and Social Capital. Note for discussion, Raising the Quality of Learning for All. Meeting of OECD Education Ministers, March 18-19 Dublin.

5.3 Conclusions

5.3.1 THE EXTENT TO WHICH OBJECTIVES ARE BEING MET

1. 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.
2. 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.

5.3.2 WHAT WE NEED TO KNOW NEXT ABOUT THE SOCIAL BENEFITS OF PSE

1. Canada will benefit from the second phase of the OECD CERI-Network B project on Social Outcomes of Learning, which aims to develop indicators from existing data sources and suggest new data development. The project will focus on what the Program for International Assessment of Adult Competencies (PIAAC) should reasonably collect in this area. Indicators to measure the extent to which PSE promotes social capital and Canada's success in this regard must be developed.
2. Benchmarking the impacts of the social benefits associated with PSE is required.

5.3.3 A POSITIVE RECORD – AN UNCERTAIN FUTURE

A positive record

The limited indicators on social benefits show that 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, mobile international skilled workers choose countries and communities that are safe and culturally vibrant, and which accommodate diversity.

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

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 also closely linked to PSE achievement levels.

An uncertain future

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

QUALITY PSE

6.1 Introduction

This report on Canadian post-secondary education is intended to reflect both PSE's returns to society and the economy in general and its returns to the individual student—the learner. The quality of these returns is of central concern to individual learners.

Delivery of *quality* post-secondary education is prominent in the strategic plans of individual post-secondary institutions and provincial ministries responsible for advanced education. The issue of defining and assessing quality is tightly linked to questions for accountability, value for money, and efficiency and effectiveness of programs.

Considerable work has been done in recent years to achieve a more rigorous definition and understanding of the meaning of *quality*—a topic that proves elusive and complex when attempting to identify objective, comparable and measurable standards.

In Canada, a traditional general-level indicator of the quality of PSE institutions is the credibility or acceptance of credentials awarded to graduates. Individual institutions have their own internal and external review and assessment processes for assuring quality and approving course and program offerings.

Canada has not brought in any process of quality review at the national level, nor has it put in place a regionally based institutional accreditation system such as that in the United States. As a consequence, there is a strong risk that Canadian institutions, anxious to attract and retain students—especially from abroad—will turn to American accrediting agencies. This may lead naturally to the Americanization of Canadian PSE priorities, perspectives, content and language—with negative results for the integrity of Canadian higher education and a sense of distinctive Canadian identity.

HOW OTHER COUNTRIES ADDRESS QUALITY

The European Network for Quality Assurance in Higher Education was established in 2000 to promote European co-operation in the field of quality assurance. In November 2004, the General Assembly transformed the Network into the European Association for Quality Assurance in Higher Education (ENQA). Its purpose is to disseminate information, experiences and good practices in the field of quality assurance (QA) in higher education to European QA agencies, public authorities and higher education institutions.

The idea for the Association originates from the European Pilot Project for Evaluating Quality in Higher Education (1994–1995), which demonstrated the value of sharing and developing experience in the area of quality assurance. Subsequently, the idea was given momentum by the Recommendation of the Council on European Co-operation in Quality Assurance in Higher Education and by the Bologna Declaration of 1999.

In the Bologna Declaration, European Ministers of Education committed themselves to establish the European Higher Education Area by 2010. In 2001, the European Ministers of Education meeting in Prague invited ENQA to collaborate and establish a common framework of reference for quality assurance, which would directly work towards the establishment of the European quality assurance framework by 2010. Two years later, in Berlin, the ministers recommended ENQA to contribute even more directly to the European quality assurance process. In the Berlin Communiqué, ENQA received a double mandate from the ministers to explore ways of ensuring an adequate peer review system for quality assurance agencies and to develop an agreed set of standards, procedures and guidelines on quality assurance.

In the Bergen meeting of May 2005, European Ministers of Education adopted the “Standards and Guidelines for Quality Assurance in the European Higher Education Area” drafted by ENQA. The ministers committed themselves to introducing the proposed model for peer review of quality assurance agencies on a national basis. They also welcomed the principle of a European register of quality assurance agencies based on national review and asked that the practicalities of its implementation be further developed by ENQA in co-operation with the European University Association, EURASHE (European Association of Institutions in Higher Education) and ESIB (the National Unions of Students in Europe), with a report back to the ministers through the Bologna Follow-Up Group (BFUG). In Bergen ENQA was accepted as a new consultative member of the BFUG.

QUALITY PSE

There is no pan-Canadian body with a mandate to determine issues of quality or the accreditation of post-secondary institutions (PSIs). Currently, the recognition of degrees issued by a Canadian university is largely dependent on membership in the Association of Universities and Colleges of Canada (AUCC). Each Canadian university is autonomous in academic matters, including the determination of its own quality assurance policies and procedures. However, the AUCC has established assessment processes to ensure that individual institutions meet certain nationally and internationally recognized criteria related to the quality of their learning resources and methods. AUCC member institutions have mission statements and objectives that underpin the development and assessment of their academic programs. Each university also has in place a formal policy that commits it to ensuring the quality and continuous improvement of the university's academic programs. The Association of Canadian Community Colleges (ACCC) is ISO 9002-certified, and a number of member colleges in the association are also ISO-certified, a reflection of their commitment to quality issues.

Provincial legislation authorizes the awarding of degrees and other credentials by PSIs. In recent years, several provinces have established quality-assurance bodies with mandates that differ in scope, but generally address issues of ensuring quality. In the case of some trades, occupations and professions, there are provincially or nationally mandated bodies, such as the Red Seal program for apprenticeship, whose criteria must be satisfied in order for an individual to become certified or licensed in his or her own province to engage in the practice of a trade, occupation or profession anywhere in Canada. The accreditations range from the wide array of apprenticeship trades to professions such as medicine, law or engineering.

While these are all relevant and useful indications of quality, this report strives to obtain a more rigorous understanding of the concept from a Canada-wide perspective by posing the general question of how PSE in Canada is performing with respect to broad goals and objectives, as articulated in the strategic plans of all provinces.

Quality as a priority goal

Issues of quality and effectiveness receive prominent mention in work published by the Council of the Federation and in the "expectations" published by provincial and territorial Ministers of Education in CMEC.

The Council of the Federation stated, "Quality education is critical to the realization of Canada's prosperity potential. Canadian post-secondary institutions and workplaces must be able to compete with the best in the world. To do so, Canadians need the best post-secondary education programs with the best faculty-student ratios, more qualified professors and up-to-date equipment and software in colleges and universities and in the workplace. At the same time, post-secondary education programs and institutions must compare favourably against international competitors to draw the most able students, and produce knowledgeable graduates with cutting-edge skills."⁷¹

A survey on attitudes toward PSE in Canada, conducted for CCL in spring 2006, asked respondents whether they thought colleges and universities in their province were doing an excellent, good, fair or poor job. Canadians viewed their own PSIs and, in a second question, those of Canada generally, as doing a good job. The figure below compares responses to similar questions asked of Americans, and shows that the responses are quite comparable, although Americans are more likely to give either an "excellent" or "poor" rating than Canadians.

Figure 6.1.1 U.S. – Canadian comparison of post-secondary sectors



Source: Pacific Issues Partners. *Canadian Attitudes on Post-secondary Education: A Report for the Canadian Council on Learning*. Ottawa: Canadian Council on Learning, 2006.

71 Council of the Federation (2006). Discussion Guide: The Future of Post-secondary Education and Skills Training in Canada. Prepared for Competing for Tomorrow: A Post-secondary Education and Skills Summit. Ottawa.

HOW CANADA'S PSE MEASURES UP

A systems approach to quality

One approach to define quality—and to connect post-secondary education with the larger societal and individual goals often associated with it—is to define a number of specifically focussed dimensions of such a concept. These include the quality of the *inputs* going into PSE, the *process* of PSE itself, and the outputs and longer-term “outcomes” associated with PSE.

A *quality* system requires high quality *inputs*, to use a familiar systems-theory term. Higher levels of financial resources available to institutions allow for higher quality facilities, highly qualified, experienced, and better faculty and staff, more modern technology and more comprehensive libraries and other learning resources. Learning environments and supports can be negatively affected by outdated or ill-maintained capital infrastructure.

As well, if learners admitted to PSIs are screened to favour those with higher levels of preparation, knowledge and ability, it should not be surprising that those institutions are likely to have reputations for producing highly qualified graduates—a kind of “virtuous circle.” This perspective, however, ignores another dimension of quality post-secondary education: that of providing access and support for learners who do not have such advantages and who must overcome barriers to enrol in and graduate from post-secondary institutions. Helping such learners is an important contribution to social and economic equity.

The *process* of higher education provided by institutions extends far beyond financial investments. Other factors affect a high quality educational experience, such as the dedication and focus of faculty and staff, the motivation of and supports available to learners, and the culture and climate of the institution itself. Another dimension of quality is the efficiency and effectiveness of educational programming. One way to measure the quality of the PSE experience is to examine completion rates and time to completion.

Quality is also a question of end-results or *outcomes*—the actual learning that is acquired by students, the

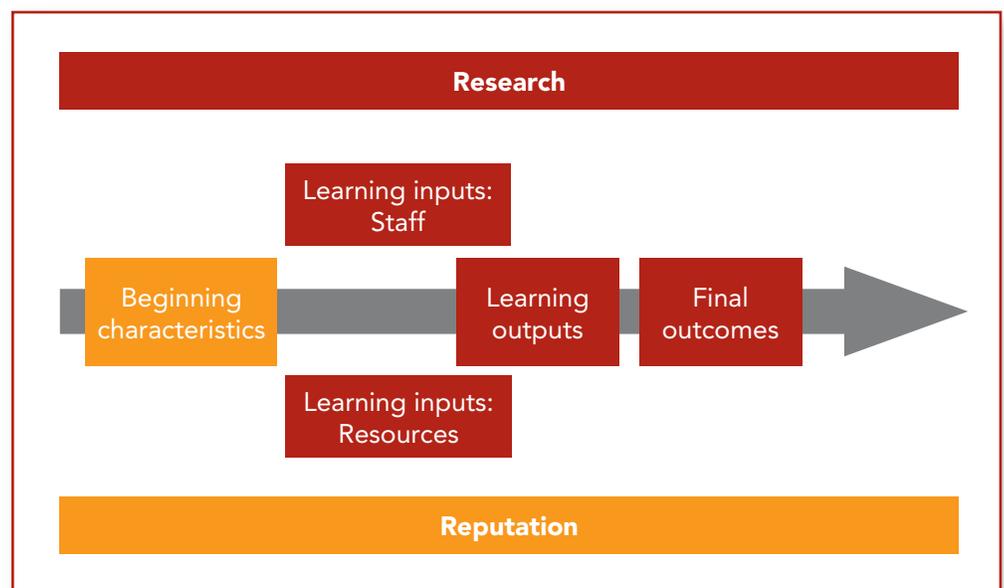
research and knowledge dissemination performed by faculty, and the social and economic returns flowing to individual students, the communities they live in, and to society and the economy as a whole.

This poses the question: can PSE be examined through the lens of *cost-benefit* analysis for individuals who take post-secondary education or for society generally? This is not a trivial question in light of the fact that Canada invests in excess of \$29 billion in public funding annually on PSE, and individual Canadians spend an additional \$7 billion to \$8 billion.

Increasing attention is being paid to the various aspects and dimensions of quality, and specifying the linkages between and among those dimensions, to gain a better, more comprehensive and rigorous understanding of the full meaning of the quality of post-secondary education.

A paper published by Usher and Savino in January 2006 sets out a conceptual framework (illustrated below) to examine the various dimensions and relationships within the general theme of “quality.”⁷²

What is unclear is whether the associations between PSE attainment and many of the *outcome* indicators are merely correlations and do not reflect causal relationships. Much work is under way to deepen our understanding of the mutual interaction of these complex factors. Almost anyone working in this field will readily admit that understandings are currently inadequate and much more research must be done.



⁷² Usher A. & Savino, M. (2006). *A World of Difference: A Global Survey of University League Tables*. Canadian Education Report Series. Educational Policy Institute.

INTERNATIONAL QUALITY ASSURANCE SYSTEMS⁷³

<p>U.K.</p>	<p>Academic standards are established and maintained by higher education institutions themselves, using an extensive and sophisticated range of shared quality-assurance approaches and structures. Standards and quality in institutions are underpinned by universal use of external examiners, publication of a standard set of indicators and other reports and by the activities of the Quality Assurance Agency (QAA). This ensures that institutions meet national expectations described in the Academic Infrastructure for quality comprising the Framework for Higher Education Qualifications (FHEQ), subject benchmark statements and the Code of Practice, which are linked to a system of program specifications.</p>
<p>Sweden</p>	<p>The National Agency for Higher Education conducts continuous quality evaluation of higher education. Its evaluation extends to all higher education, including doctoral studies. It scrutinizes quality assurance activities undertaken by the institutions themselves and considers applications for the right to award degrees.</p> <p>Sweden is a member of the European Network for Quality Assurance in Higher Education (ENQA) through the National Agency for Higher Education. There is also a Nordic Network of Quality Assurance Agencies that is, to an increasing extent, co-operating with stakeholders, institutions and students regarding quality issues.</p>
<p>Germany</p>	<p>In 1998, the federal government together with the states brought Project Q into being at the German Rectors' Conference. Among other things, the project develops different quality assurance procedures and coordinates the German position in the European framework. The federal government provided more than half a million euro annually, up to 2006, so that Project Q can continue.</p> <p>Accreditation examines whether the universities observe minimum standards when designing their study courses and fulfil course structure requirements. This gives students and employers reliable points of reference regarding the quality of study programs and higher education institutions. A National Accreditation Council is responsible for the implementation of comparable quality standards. The council accredits and supervises agencies that conduct course accreditation.</p> <p>There is currently a backlog, with respect to the accreditation of new study courses, as higher education institutions lack the capacity for filing applications and accreditation agencies do not have the capacity to process them. The result is that only 24.5% of the new study courses have been accredited.</p>
<p>France</p>	<p>France distinguishes quality assurance in several ways:</p> <ul style="list-style-type: none"> • The evaluation of institutions • The evaluation of curricula, degrees and research programs • The evaluation of persons <p>The evaluation of institutions is done by its national evaluation council, an independent body that makes publicly available institutional reports based on the analysis of each institution's strategy and results. Together with assessments by controlling bodies, this evaluation is taken into account when making the four-year contract to be approved by the state and the higher education institution.</p> <p>The evaluation of research programs implemented by higher education institutions is ensured either by:</p> <ul style="list-style-type: none"> • Research organizations (CNRS, INSERM, INRA) when the program is under the authority of a joint-research unit, (this unit involves both a higher education institution and a research institution); or • Scientific, technical and educational mission, set up at the national level in 2002, when the research unit is only under the authority of a higher education institution. <p>The evaluation of teacher-researchers and researchers is vital to improve the quality of any higher education and research scheme. In France, this evaluation is ensured by an independent body—the national Universities Council for university teachers—and by research institutions' evaluation committees for researchers.</p> <p>Within the framework of the Bologna Process, France aims to limit drawbacks from the division into three traditional parts—universities, <i>grandes écoles</i> and research institutions—to bring the French system closer to main international references. Quality assurance is considered a powerful 'pull factor' for action since no institution can put aside a scheme based on quality as assessed by legitimate bodies external to the institutions themselves.</p>

6.2 What we know now

At best, indirect data and indicators are available on the quality of learning that occurs in PSE institutions. The problem is complex because the skill gain that results from post-secondary education is difficult to quantify. There are no mechanisms to measure and compare a student's skill level prior to admission and after having gone through PSE. Consequently, students' self-assessments of increases in skill level is the generally utilized indicator.

Many provinces attempt to measure learning outcomes in public schools through standardized testing. No such measure is available for PSE students beyond the metrics used by individual professors and teachers to assess performance. The ALL study⁷⁴ points out that, "without a longitudinal design, there is no way to know for sure that the skills of post-secondary graduates are not the same as they were before they entered post-secondary."

This report focusses on what can be learned from available data and indicators, and makes suggestions about how these data gaps could be addressed.

The available measures include:

Inputs	Outcomes
<ul style="list-style-type: none"> Funding per student Faculty 	<ul style="list-style-type: none"> Graduation and dropout rates Student assessment of quality/satisfaction with their educational experience

Table 6.2.1 **Canadian attitudes toward PSE**

GOVERNMENTS DON'T SPEND ENOUGH ON POST-SECONDARY (%)	
Strongly Agree	28
Agree	47
Neither / DK / NA	9
Disagree	15
Strongly Disagree	2

Source : Source: Pacific Issues Partners. *Canadian Attitudes on Post-secondary Education: A Report for the Canadian Council on Learning*. Ottawa: Canadian Council on Learning, 2006.

6.2.1 FUNDING PER STUDENT

» In Canada, funding per student in PSE is above the OECD mean.

The 2006 PCEIP Report provides the most recent comparable expenditures figures available for funding per student, including public and private funding for colleges and universities:

Table 6.2.1.1 **Combined public and private expenditures on educational institutions per student**

Combined public and private expenditures on educational institutions per student (based on full-time equivalents) in equivalent U.S. dollars converted using PPPs, at the college and university levels, G7 countries and OECD mean, 2000	CANADA	14,983
	France	8,373
	Germany	10,898
	Italy *	8,063
	Japan	10,914
	United Kingdom	9,657
	United States **	20,358
	OECD countries (Mean)	11,109

On the more specific question of public funding for universities, the AUCC Trends document notes that "Canadian universities now have about \$2,000 less support per student than they had at the beginning of the 1980s," when the combined effect of increased institutional student aid and tuition and relatively reduced levels of government support are considered.⁷⁵ The AUCC analysis found that government funding per university student in Canada fell from close to \$13,000 per student in 1985 to a low of about \$11,000 per student in 1996. It then rose to just under \$12,000 in 2001.⁷⁶

*Public institutions only.

**Public and independent private institutions only.

Data source: Education at a Glance 2003, Table B1.1. OECD.

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. Ottawa, 2006.

74 Statistics Canada and OECD (2005). *Learning a Living: First Results of the Adult Literacy and Life Skills Survey*. Ottawa-Paris. p. 112.

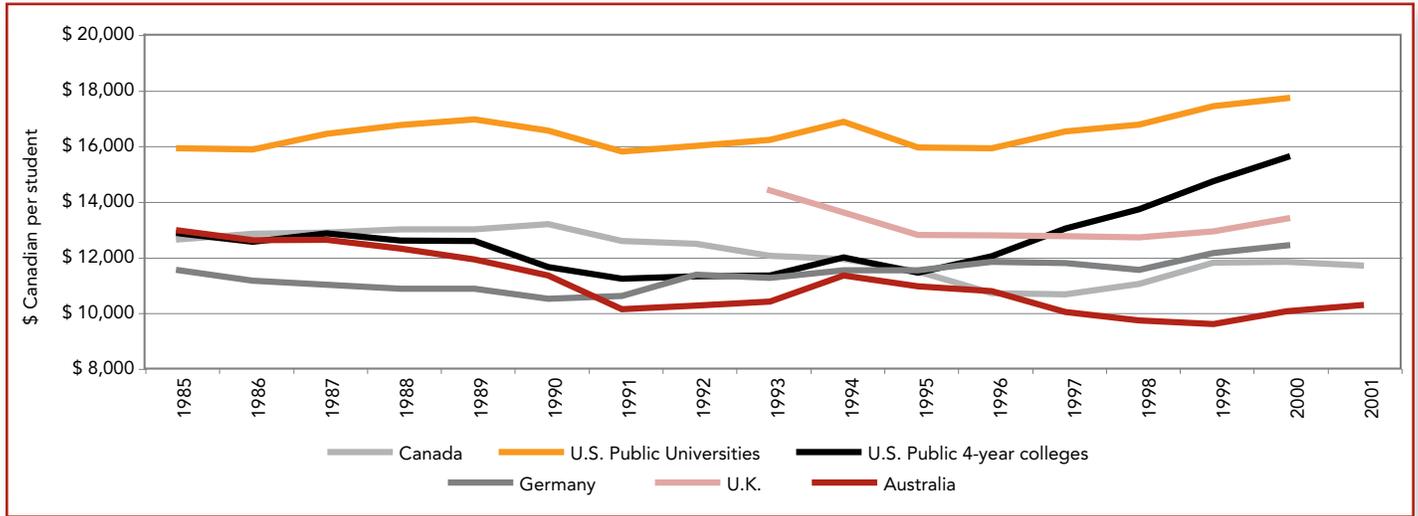
75 Association of Universities and Colleges of Canada (2002). *Trends in Higher Education*. Ottawa.

76 Ibid.

QUALITY PSE

Per student funding is higher in the U.S., U.K. and Germany:

Fig. 6.2.1.1 **Government funding for universities in the U.S. is growing more rapidly than in other countries**



Source: AUCC Trends in Higher Education, 2002, based on AUCC estimates and reports from selected countries

6.2.2 FACULTY

» Student-to-faculty ratios have increased in the past decade, along with a greater reliance on sessional or part-time faculty.

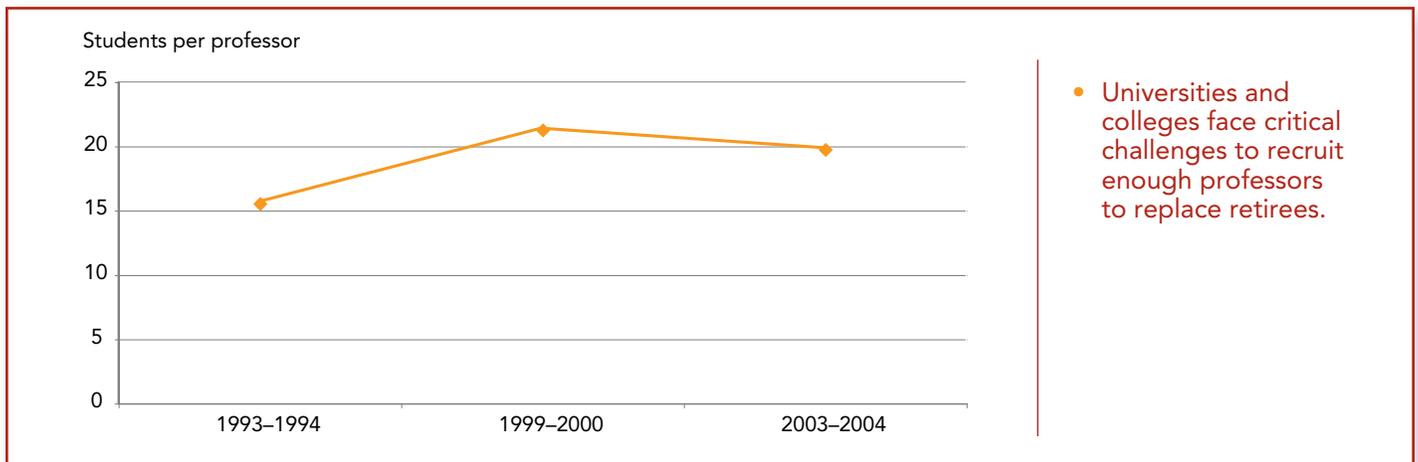
The numbers of full-time faculty have not kept pace with growing enrolment. As a result, in many cases institutions have turned to part-time or sessional lecturers to conduct classes. The increased importance of research—and the inherent reward structures of many research universities—tend to reinforce these trends.

Table 6.2.2.1 **Full-time students per full-time instructor**

FULL-TIME STUDENTS PER FULL-TIME INSTRUCTOR					
Students		Professors		Students per Professor	
1993–1994	2003–2004	1993–1994	2003–2004	1993–1994	2003–2004
574,320	735,600	36,912	37,203	15.6	19.8

Source: Statistics Canada, Enhanced Student Information System and PCEIP 2006, Table D3.1

Fig. 6.2.2.1 **Full-time students per full-time instructor**



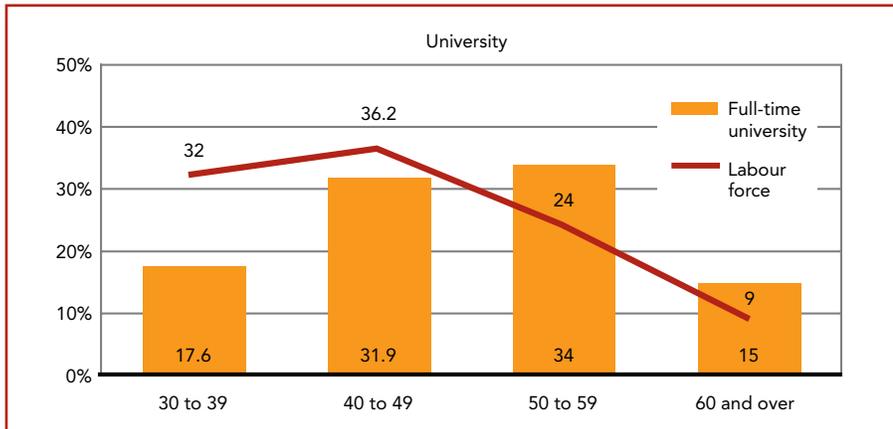
- Universities and colleges face critical challenges to recruit enough professors to replace retirees.

Source: Statistics Canada, Enhanced Student Information System and PCEIP 2006, Table D3.1

HOW CANADA'S PSE MEASURES UP

Ageing professors will present significant problems of faculty renewal in the next 10 years. The age distribution of Canadian university educators is reported below:

Fig. 6.2.2.2 **Age distribution of full-time university educators compared to that of the labour force, Canada, 2003–2004**



Note: Age distributions of educators and labour force are calculated as a percentage of the educator and labour force populations aged 30 and over.
Data sources: Statistics Canada, Labour Force Survey. Table D3.2.
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.

The challenge of faculty renewal is made more difficult by the fact that Canada is not producing enough replacements, given the relatively low rate of PhDs granted by PSIs. As well, there is fierce international competition for qualified professors because of the very similar demographic patterns among faculty in American and other OECD post-secondary institutions. Further fuelling shortages is a growing demand for PhD holders in government and industry.

Table 6.2.2.2 **Replacement shortages among full-time faculty with doctorates, Canada, 2002–2003**

AGE	FULL-TIME FACULTY (BOTH GENDERS)	FACULTY WITH DOCTORATES (BOTH GENDERS)	% OF FACULTY WITH DOCTORATES (BOTH GENDERS)
Under 40	6,660	5,220	78.4
40 to 54	17,610	13,650	77.5
55 and over	11,740	9,350	79.6

Source: Statistics Canada, University and College Academic Staff System, 2002–03
 Statistics Canada (2002). Perspectives on Labour and Income. Catalogue no. 75-001-XIE.

For a more complete picture of the challenge, similar data at the national level for college faculty, and for part-time or sessional faculty, rather than just full-time faculty, must be collected and analyzed.

QUALITY PSE

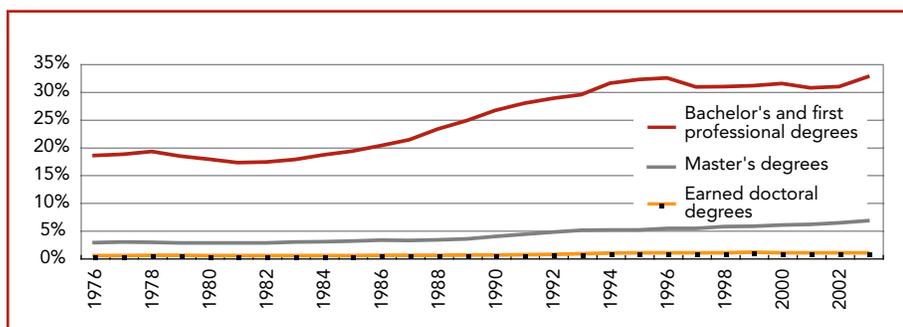
6.2.3 GRADUATION AND DROPOUT RATES

» University graduation rates have increased in the last decade for females in bachelors and first-degree programs, but have dropped for males. Graduation rates in master's programs have increased for female and male students.

There has been relatively little growth over the past five years in the percentage of the population that received various levels of degrees at the typical age of graduation.

Dropout or attrition rates from PSE institutions are an important consideration. Although data are limited, studies show that in both Canada and the U.S., approximately 20–25% of first-year students do not go on to second year. An additional 20–39% drop out later in their studies. Of course, some who leave may return later, but there is no information on this group in Canada. Overall, PSE attrition rates are relatively stable over time.⁷⁷

Fig. 6.2.3.1 Graduation rates for university degrees, Canada, 1976 to 2003



Note: Graduation rate: total number of graduates divided by population at typical age of graduation. 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.

6.2.4 STUDENT ASSESSMENT OF QUALITY/SATISFACTION

» Students and graduates have high levels of satisfaction with their PSE experience, but objective, comparable data on what knowledge and skills have been obtained is lacking.

A number of PSIs in Canada administer *student outcome* surveys, asking such questions as whether students are satisfied with their educational experience, how they would rate it in terms of their own acquisition of particular skills and knowledge, and whether it assisted them to secure employment in the field of their choice.⁷⁹

Ontario, Alberta and British Columbia all administer some form of student satisfaction and graduate satisfaction surveys as part of their *key performance indicators* and accountability measures. The results indicate generally high levels of satisfaction over time.

In Canada, studies of factors that impact attrition in PSE are scarce, but the Grayson study⁷⁸ concluded that generalizations about who drops out, and why, could be misleading because of many differing circumstances. The research did seem to indicate that the intent of the student to remain in school, rather than pre-entry characteristics (marks, gender, family background), is one factor that clearly impacts persistence at PSE.

For information on dropout rates to be useful, a breakdown of the statistics by gender, family income and sub-populations is necessary. While research shows that some groups have more difficulty accessing PSE than others, it is not clear what their experiences are once they start attending post-secondary institutions. Again, more systematic and comprehensive data would offer better insight into questions that relate to efficiency and effectiveness. It should be noted that ACCC has conducted a survey in the past year that will help assess the situation with respect to colleges and institutes.

In Ontario, for example, the college experience has seen a rising trend of student satisfaction (from 68.4% in 1999–2000 to 77.8% in 2005–2006), and a stable trend in graduate satisfaction (at around 80% during this same period).

In British Columbia, satisfaction with education received at colleges, university colleges and institutes remained quite stable in the mid-80% range from 2000 to 2004; satisfaction of university graduates was in the mid-90% range.⁸⁰

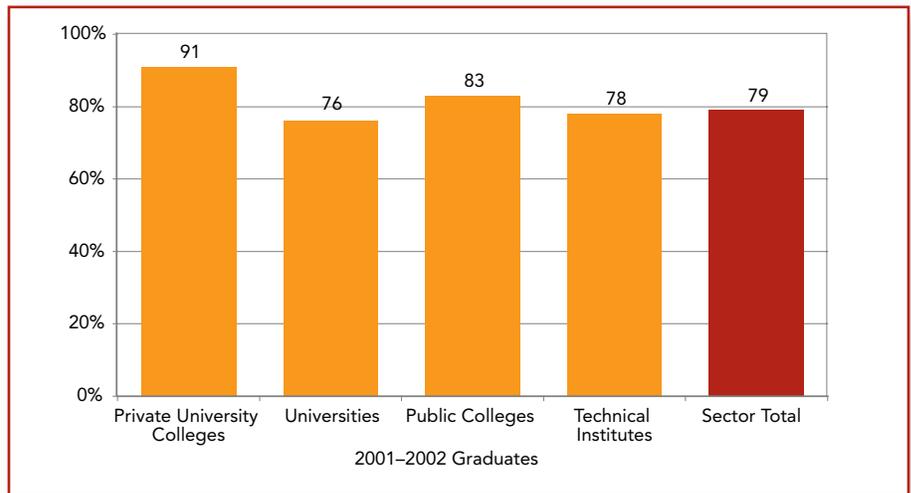
77 Grayson, J.P. & Grayson, K. (2003). Research on Retention and Attrition. Millennium Research Series: Does Money Matter? No. 6. Canada Millennium Scholarship Foundation. Ottawa.
78 Ibid.
79 The related question of "employer satisfaction" is dealt with in the next chapter.
80 British Columbia Ministry of Advanced Education. Annual Service Plan Report 2004–05.

HOW CANADA'S PSE MEASURES UP

Alberta surveys students, employers and other stakeholders regarding their level of satisfaction. Graduates are questioned about their level of satisfaction with the overall quality of their education or, in the case of apprentices, regarding their satisfaction with the on-the-job and technical training they have received.

Other provinces are in the process of launching such surveys. The Alberta government report for 2004–2005⁸¹ contained the Figure 6.2.4.1.

Figure 6.2.4.1 **Satisfaction of recent post-secondary graduates with the overall quality of their education (new methodology)**



Source: Alberta Advanced Education Annual Report 2004–2005.

Notes:

- Includes graduates of parchment programs (i.e. certificate, diploma and degree programs).
- The survey was last conducted by R.A. Malatest and Associates in 2003–2004 for students who graduated in 2001–2002.

In British Columbia, the ministry surveys graduates about their perceptions of skill gain as a result of their PSE experience and reports the findings in its annual service plan reports. The most recent results are displayed in Table 6.2.4.1.⁸²

These surveys offer helpful evidence on student and graduate satisfaction. However, they are subjective, inconsistently collected across the country and not necessarily comparable. This substantially limits their utility in revealing the national picture.

Table 6.2.4.1 **Historical data***

SKILL TYPE	COLLEGES, UNIVERSITY COLLEGES AND INSTITUTES SURVEY YEAR				UNIVERSITIES SURVEY YEAR	
	2001	2002	2003	2004	2002	2004
Written Communication	74.10%	72.50%	73.30%	74.40%	83.10%	84.00%
Oral Communication	72.80%	71.40%	71.80%	73.70%	81.10%	80.8%**
Group Collaboration	81.30%	82.60%	83.30%	83.70%	77.30%	77.30%
Problem Resolution	n/a	n/a	73.90%	75.80%	73.50%	75.40%
Critical Analysis	n/a	n/a	83.00%	83.60%	89.80%	90.30%
Reading and Comprehension	81.30%	82.20%	81.90%	82.20%	86.40%	86.80%
Learn on Your Own	80.30%	79.70%	81.80%	81.30%	89.60%	89.70%
Average	77.90%	77.70%	78.40%	79.20%	83.00%	83.50%

*Margins of error for all data are within plus or minus one percentage point

**The observed decrease is not statistically significant

CANADIAN ATTITUDES TOWARD PSE

Canada gets good value for money Governments spend on Post-secondary (%)

Strongly Agree	8
Agree	48
Neither / DK / NA	13
Disagree	26
Strongly Disagree	5

Source: Pacific Issues Partners. *Canadian Attitudes on Post-secondary Education: A Report for the Canadian Council on Learning*. Ottawa: Canadian Council on Learning, 2006.

81 Alberta Advanced Education Annual Report 2004–2005. Alberta Advanced Education System-Wide Planning Branch.

82 British Columbia Ministry of Advanced Education. Annual Service Plan Report 2004–05.

6.3 Conclusions

6.3.1 THE EXTENT TO WHICH OBJECTIVES ARE BEING MET

1. Students, graduates and employers surveys demonstrate high levels of satisfaction with the quality of PSE. However, such subjective proxy measures of quality do not allow for definitive assessment of the quality of Canadian PSE. Canada requires more objective and direct quality indicators.
2. Several indicators identify pressures that can negatively impact quality:
 - a. Faculty numbers in Canada have not kept pace with growing enrolment; as a result, many PSIs are increasing class sizes and relying on part-time or sessional instructors rather than full-time faculty.
 - b. Aging professors present significant problems internationally for faculty renewal over the next 10 years.
 - c. Increased research priority limits teaching time of tenured, full-time faculty, especially at the undergraduate level.

6.3.2 WHAT WE NEED TO KNOW NEXT ABOUT QUALITY PSE AND TRAINING

1. A better understanding is required of the dynamics of attrition and completion of post-secondary education—who drops out, why, where they go and whether they return and complete their credential later or elsewhere. Some provinces have taken steps to improve tracking of learners through issuance of a unique identifier number assigned to students. Such an approach is needed on a national basis.
2. Direct measures of the quality and effectiveness of post-secondary education must be developed. The introduction of Canadian-adapted version of the National Survey of Student Engagement, originated in the U.S., are very positive steps in moving toward a clearer understanding of quality in PSE. These developments must be carefully monitored.
3. Consideration must be given to the implementation of tools, such as the recent Collegiate Learning Assessment initiative in the United States, to obtain a more direct and objective assessment of the effectiveness and quality of PSE in providing learning.
4. Data need to be updated and analyzed for: expenditure figures; comprehensive student numbers by PSE sector over time; enrolment per full-time faculty; faculty qualifications; detailed graduation and dropout rates by gender and socio-economic background. As well, a consistent methodology is needed to measure student assessment of quality/satisfaction across all jurisdictions.

HOW CANADA'S PSE MEASURES UP

6.3.3 A POSITIVE RECORD — AN UNCERTAIN FUTURE

A positive record

A well-educated population is one of the greatest competitive advantages countries have in the 21st century knowledge economy. Canada currently benefits from one of the best-educated workforces in the world. However, escalating educational requirements, shifting demographic patterns and an impending shortfall of skilled workers within the decade demand that Canada's PSE be of the highest quality possible to ensure Canada's continued competitiveness.

An uncertain future

At present, it is impossible to state objective, rigorous conclusions about levels of quality in Canadian PSE, since only indirect, proxy and subjective indicators exist. This is the same for most other countries, many of which are devoting significant attention to achieving a better understanding of quality.

Regular, ongoing national surveys—along the lines of the NSSE and CLA—are needed to assess the effectiveness of and the value added by the learning opportunities provided by Canada's post-secondary institutions, and to measure value for money for Canadian students and taxpayers.

The absence in Canada of any national PSI 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.

THE NATIONAL SURVEY OF STUDENT ENGAGEMENT (NSSE)

The National Survey of Student Engagement (NSSE) has identified five benchmarks that speak to the issue of the educational process:

1. Level of academic challenge—setting high academic performance expectations;
2. Active and collaborative learning—through application of learning to different settings;
3. Student-faculty interaction—both inside and outside the classroom;
4. Enriched educational experiences—such as internships and community service that enable students to synthesize, integrate and apply knowledge; and
5. Supportive campus environment—focus on cultivation of positive working and social relations among different groups on campus.

The NSSE survey asks students to rate their experience in terms of these various clusters of activities, as a more intensive measure of the "quality" of the educational experience. The NSSE is in use in a growing number of post-secondary institutions in the U.S. and, more recently, in Canada. It is of great interest to note that it has been employed in many of Ontario's 19 publicly funded universities, beginning in 2006.

THE COMMUNITY COLLEGE SURVEY ON STUDENT ENGAGEMENT (CCSSE)

The CCSSE, the Community College Survey on Student Engagement, is also in use in the U.S. to assess the unique mission and diverse populations of community colleges. The resulting Community College Student Report surveys students about behaviours that are correlated to learning and also assesses institutional practices. The survey is used as a benchmarking instrument, diagnostic tool and monitoring device.

In Canada, ACCC has launched the Pan-Canadian Study of College Students, an extensive CCSSE-type study that asks five questions:

1. What are the characteristics of students who attend Canadian colleges and technical institutes?
2. What is the nature of the college student experience during the first year?
3. What are the key determinants of student academic success and persistence?
4. What policies, practices, programs and services have colleges and institutes developed to promote student success?
5. Which institutional policies, practices, programs and services have a significant positive impact on first-year student success and persistence?

THE COLLEGIATE LEARNING ASSESSMENT (CLA)

The recent Collegiate Learning Assessment (CLA) initiative in the United States may offer additional avenues to gain objective insight into the actual value-added learning obtained through post-secondary education. The CLA is increasingly being used in PSE institutions to gauge the effectiveness of learning methods in those institutions and to separate other factors that cloud the extent to which the learning is associated with prior conditions, rather than the teaching and learning provided through the college experience itself.

ACCESS AND OPPORTUNITY FOR CANADIANS

7.1 Introduction

For most Canadians, access to post-secondary education revolves around issues of affordability and the ability of marginalized groups to pursue post-secondary studies. While important issues and public priorities, these topics are not the subject of this chapter, but are explored in detail later in this report.

Instead, this chapter examines overall PSE participation rates and public expenditures to evaluate how well Canada is achieving the goal of markedly increasing access to PSE. It also explores trends in improved accessibility through the introduction of flexible, alternative delivery mechanisms such as e-learning. To the extent possible, institutional capacity and student demand are discussed.

Around the globe, most countries have set objectives to support and encourage equal opportunity for their populations to access PSE. Usually, these objectives are directly linked to goals enabling individuals to fulfil their potential, regardless of their backgrounds. These countries track a variety of indicators, from participation rates to expenditure figures.

In Canada, as in other jurisdictions, PSE participation rates have risen consistently since the Second World War. This trend has resulted from many factors. First, the demand for advanced education and skills has increased significantly. Second, provincial and federal governments have introduced policies to promote enhanced access

for all Canadians through such measures as: student financial assistance (both general and targeted to specific groups); development of educational institutions outside of major metropolitan areas; increased capacity of existing institutions; and creation of programs to enhance students' preparedness for PSE (literacy and transition programs). Technological advances also offer a wide array of options for alternative and enhanced PSE delivery to Canadians, no matter where they live.

The opportunity to attend PSE is of great significance to Canadians, as illustrated by the CCL poll on post-secondary education. When asked about "access by qualified students", 59% responded that "many qualified students don't have the opportunity to attend." Improving access to PSE was identified by the majority of respondents as their first priority (52%).

Source: Pacific Issues Partners. *Canadian Attitudes on Post-secondary Education: A Report for the Canadian Council on Learning*. Ottawa: Canadian Council on Learning, 2006.

CANADIAN ATTITUDES TOWARD PSE

When asked whether a post-secondary education is becoming more difficult to obtain, a slim majority (53%) of respondents agreed (35%) or strongly agreed (18%) that "getting a college or university education is more difficult today than it was 10 years ago."

Source: Pacific Issues Partners. *Canadian Attitudes on Post-secondary Education: A Report for the Canadian Council on Learning*. Ottawa: Canadian Council on Learning, 2006.

7.2 What we know now

In simple terms, access refers to the number of people that participate in post-secondary education. The demographics of those who access PSE is also important and will be discussed in the following chapter.

Participation rates and educational attainment figures measure the extent to which Canadians capitalize on opportunities for formal education. Public expenditure, although not a direct measure of access, is pivotal to the stability and growth of PSE. This variable has the advantage of being a standard general measure across most jurisdictions.

A statistical measure of capacity in the PSE sector would be useful to compare the current and anticipated student demand to determine if capacity issues present a barrier to access. Such data are not currently collected or monitored.

E-learning trends and prior learning assessment and recognition (PLAR) are examined to determine the extent to which institutions are adopting alternative delivery methods and establishing flexible entrance requirements to enhance access. Data on these issues are just starting to be collected, and the lack of consistent definitions and regular data collection hampers the identification of relevant trends.

Indicators regarding credit transfer and program articulation, as well as usage of PLAR tools, would help improve assessment of student access and mobility. This is another area where data are scarce in Canada, even though mobility is recognized as an economic and social good in many parts of the world.⁸³

In the absence of adequate benchmarking instruments, the following indicators have been selected to assess PSE access in Canada:

- Educational attainment
- Participation rates
- Public expenditures on education and training
- Demographic trends and institutional capacity
- Flexible, alternate delivery
- Credit transfer
- Prior learning assessment and recognition (PLAR)
- Public opinion polling on PSE

7.2.1 EDUCATIONAL ATTAINMENT

» Canada has one of the highest levels of PSE attainment in the world.

With a history of high educational attainment rates for its population, Canada ranks second internationally in PSE attainment (45%), second in attainment of college/vocational programs, and fifth in numbers of university

graduates. Approximately 22% of working-age Canadians had attained university education in 2003, and a further 22% had attained college or vocational education.

Table 7.2.1.1 **Post-secondary attainment of working-age population**

COUNTRY	POST-SECONDARY (ANY TYPE)	COUNTRY	ACADEMIC/UNIVERSITY/ RESEARCH PROGRAMS	COUNTRY	COLLEGE/VOCATIONAL PROGRAMS
Russian Federation*	55%	United States	30%	Russian Federation*	34%
Israel	45%	Norway	29%	Canada	22%
Canada	45%	Israel	29%	Japan*	17%
United States	39%	Denmark	25%	Finland	17%
Japan*	38%	Canada	22%	Israel	16%
Sweden	35%	Australia	22%	Sweden	15%
Finland	34%	Russian Federation*	21%	United States	9%
Denmark	32%	Japan*	21%	Australia	9%
Norway	32%	Sweden	19%	Denmark	7%
Australia	31%	Finland	17%	Norway	2%

Source: CCL Composite Learning Index based on OECD Education at A Glance, 2005
* Reference year 2003.

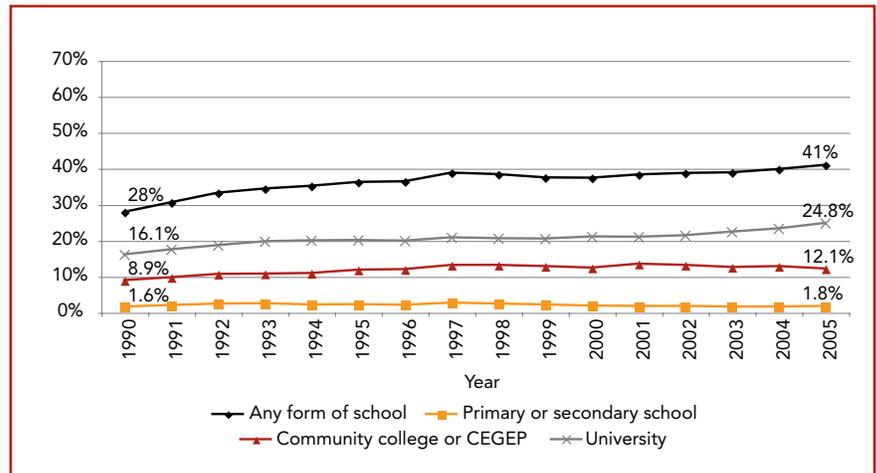
HOW CANADA'S PSE MEASURES UP

7.2.2 PARTICIPATION RATES

» Canadian young people are participating in PSE at increasing rates.

The Composite Learning Index chart demonstrates that the participation of young people aged 20–24 rose from 28% in 1990 to 41% in 2005. Statistics for young people aged 18–20 indicate over half participate in formal schooling.

Fig. 7.2.2.1 Educational attendance, 20- to 24-year-olds, 1990–2005



Source: Canadian Council on Learning, Composite Learning Index, 2006.
 Data Source: Statistics Canada Labour Force Survey, 2005.

Data for colleges and universities are displayed in the following figures, which illustrate both the increase in participation rates over the last decade and the age distribution of participating young people. While there have been increases in both college and university participation rates, the proportion of young people completing college or CEGEP has experienced the highest percentage increase over the last decade.

Fig. 7.2.2.2 Participation rate at the college level, Canada, 1993–1994 and 2003–2004

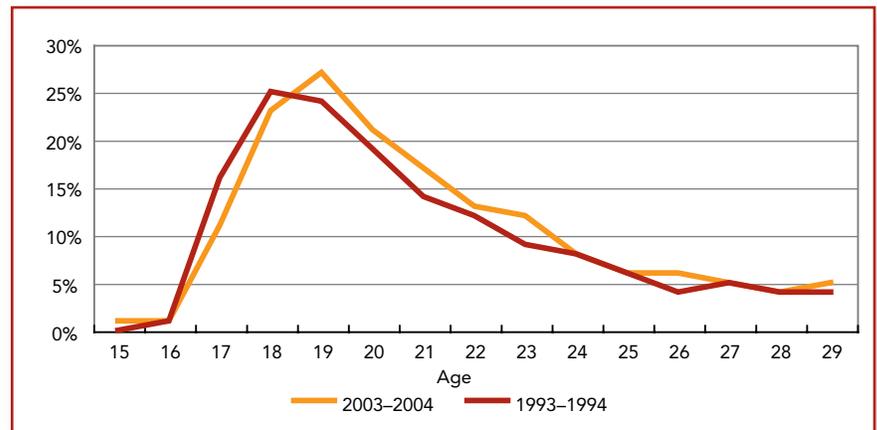


Figure source: Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program. Council of Ministers of Education, Canada and Statistics Canada: Canadian Education Statistics Council. Catalogue no. 81-582-XIE. Ottawa, 2006.

ACCESS AND OPPORTUNITY FOR CANADIANS

Fig. 7.2.2.3 Participation rate at the university level, Canada, 1993–1994 and 2003–2004

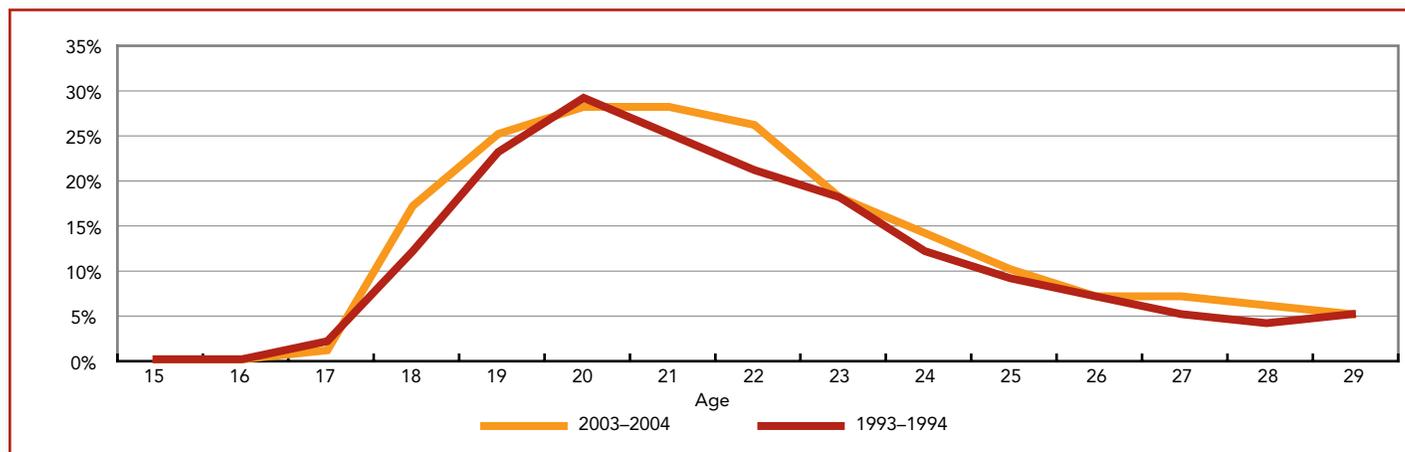


Figure source: Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program. Council of Ministers of Education, Canada and Statistics Canada: Canadian Education Statistics Council. Catalogue no. 81-582-XIE. Ottawa. 2006.

- Participation of Canadian young people aged 20–24 in education is among the highest in the world.

It is difficult to compare participation rates for young people across international jurisdictions because of different educational structures and practices. Canadian youth attend and often complete PSE at earlier ages than youth in European countries. International data are available for 20- to 24-year-olds (a narrower group than that examined in the figures just above), but many Canadian youth have already completed their studies by their early 20s. If we add the participation rates for 20- to 24-year-olds to those 20- to 24-year-olds who are no longer in education, but have at least some post-secondary education, the figures better reflect Canadian youth participation—not necessarily completion—in PSE.

Table 7.2.2.1 shows that Canada ranks at approximately mid-point in OECD countries in the number of 20- to 24-year-olds in education.

Table 7.2.2.1 Distribution of 20- to 24-year-olds, by educational situation (2002)

OECD COUNTRIES	NOT IN EDUCATION, WITH TERTIARY EDUCATION (%)	IN EDUCATION (%)	TOTAL (%)
Netherlands	4.1	55.6	59.7
Denmark	2.9	48.4	51.3
Finland	4.3	48	52.3
Iceland	1.8	46.1	47.9
Norway*	6.5	45.7	52.2
Poland	2.1	44.1	46.2
France	11.4	43.5	55
Spain	13.7	43.4	57.1
Luxembourg	3.7	42.8	46.4
Sweden	3.5	39.9	43.4
Belgium	15.5	39.8	55.3
Canada	16.5	39.3	55.8
Italy	1	38.2	39.2
Switzerland	4.6	38.2	42.8
Germany	2.9	38.1	41
Australia	15.3	37.2	52.5
Country mean	9.6	37.1	46.6
Hungary	4.3	35.9	40.1
Greece	5.4	35.3	40.7
Austria	4.4	35	39.4
United States**	12.4	33.9	46.4
Portugal	4.6	31.7	36.3
Ireland	15.4	30.4	45.7
United Kingdom	14.8	29.5	44.3
Czech Republic	2.4	27.3	29.7
Slovak Republic	2.7	23.5	26.2

*Year of reference 2003.

**Year of reference 2001.

Source: OECD INES-Network B, special YALLE data collection.

HOW CANADA'S PSE MEASURES UP

7.2.3 PUBLIC EXPENDITURES ON POST-SECONDARY EDUCATION AND TRAINING

» PSE in Canada has maintained its relative share of public program spending.

Despite economic downturns in the 1990s and serious public-sector cuts to control deficits and debt, education in Canada—including post-secondary education—has maintained its share of overall public expenditures. In the last four years, the program share devoted to PSE

expenditures has actually trended upwards and, overall, the share of spending for PSE has increased from 5.3% in 1990 to around 6.0% in 2004. The following data illustrate patterns in public expenditures over the past decade:

Table 7.2.3.1 **Public expenditures* on education, health, social services, and non-social programs in Canada, 1990 to 2004 (in 2001 constant dollars)**

	ELEMENTARY-SECONDARY EDUCATION	POST-SECONDARY EDUCATION	OTHER EDUCATION	EDUCATION TOTAL	ELEMENTARY-SECONDARY EDUCATION	POST-SECONDARY EDUCATION	OTHER EDUCATION	EDUCATION TOTAL	
Expenditures in millions of 2001 constant dollars				Percentage distribution of expenditures by program					
1990	31,707	19,963	2,402	54,071	1990	8.4	5.3	0.6	14.4
1991	33,471	20,893	2,496	56,860	1991	8.6	5.3	0.6	14.6
1992	36,502	22,156	2,815	61,472	1992	8.8	5.3	0.7	14.8
1993	37,998	22,888	3,360	64,246	1993	9.1	5.5	0.8	15.3
1994	37,941	22,906	3,278	64,126	1994	9.0	5.4	0.8	15.2
1995	38,158	22,642	3,773	64,573	1995	9.1	5.4	0.9	15.5
1996	36,967	22,726	3,519	63,213	1996	8.8	5.4	0.8	15.1
1997	36,217	21,564	2,829	60,610	1997	9.0	5.3	0.7	15.0
1998	35,941	22,037	3,112	61,091	1998	9.0	5.5	0.8	15.3
1999	35,551	23,395	3,808	62,754	1999	8.7	5.7	0.9	15.4
2000 r	36,664	24,169	4,311	65,145	2000 r	8.4	5.6	1.0	15.0
2001 r	36,635	25,352	4,231	66,218	2001 r	8.4	5.8	1.0	15.1
2002 r	36,410	23,537	4,139	64,518	2002 r	8.3	5.4	0.9	14.7
2003 r	36,759	25,778	4,236	66,773	2003 r	8.5	6.0	1.0	15.5
2004 r	37,407	25,998	4,494	67,900	2004 r	8.5	5.9	1.0	15.4

r: revised

Note: Data in this table allow comparisons across government programs but are not directly comparable with data in other tables.

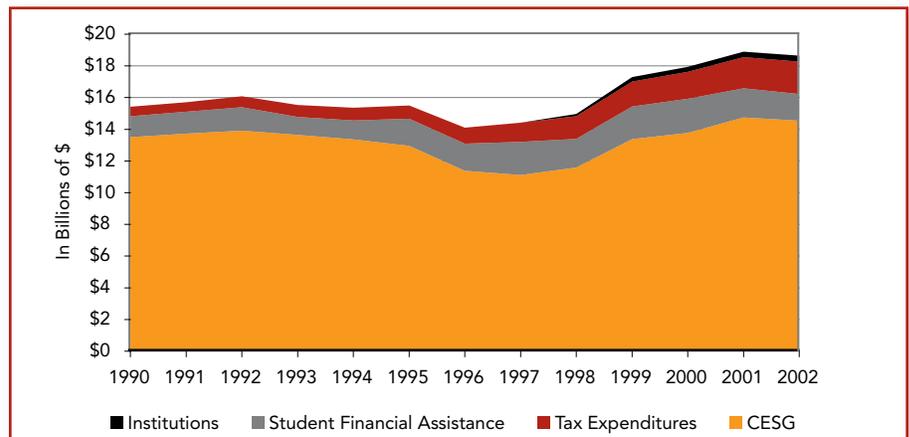
* Includes expenditures by the federal, provincial/territorial and local levels of government.

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: Canadian Education Statistics Council. Catalogue no. 81-582-XIE. Ottawa, 2006.

In addition to direct expenditures on educational institutions, Canada's federal and provincial governments use tax expenditures to support PSE—a trend that has increased in the last decade. Since 1996, total federal government tax expenditures have grown from just under \$600 million dollars to \$1.7 billion in 2004. These funds are composed of various education tax credits, student loan interest credit and the Registered Education Savings Plan (RESP) initiative. Figure 7.2.3.1 is useful in that it illustrates direct expenditures on institutions, tax expenditures and student financial assistance.

Fig. 7.2.3.1 **Total Government Transfers in Post-secondary Education by Type (in 2003 dollars)**



Source: Provincial/Territorial Student Aid offices, Government of Canada's Department of Finance and Provincial Department of Finance data, CANSIM II database (487-004, 487-005 and 487-007), Canadian Association of University Business Offices 2001 and 2002, Government of Canada Part III estimates, Canada Millennium Scholarship Foundation Annual Reports and the Canada Education Savings Grant program.

ACCESS AND OPPORTUNITY FOR CANADIANS

Canada's public investment in post-secondary institutions as a percentage of GDP is among the highest in OECD countries

Among OECD countries, Canada has historically been a leader in investment in education and training as a percentage of GDP. This indicator is utilized by most jurisdictions as a proxy to measure access to education. It is worthwhile to track Canada's international ranking to compare with trends in other countries.

From 1995–2001, Canada ranked in the top three jurisdictions for public investment in educational institutions as a percentage of GDP.

In 2000 (most recent data available for Canada), Canada ranked second in the G7 countries (but 4th among OECD countries) for per student expenditures at the university and college level at US\$14,983 per student. This compares to US\$20,358 in the United States.

Table 7.2.3.2 **Public and private educational expenditures for educational institutions as a percentage of GDP (G7 countries plus Australia and South Korea) with ranking for top three countries in brackets**

	1995	1998	1999	2000	2001
Canada	2.0 (3)	1.85 (3)	2.5 (1)	2.6 (3)	2.5 (2)
U.S.	2.6 (1)	2.29 (2)	2.3 (3)	2.7 (1)	2.7 (1)
U.K.	1.2	1.11	1.1	1.0	1.1
France	1.1	1.13	1.1	1.1	1.1
Germany	1.1	1.04	1.1	1.0	1.0
Japan	M	1.02	1.0	1.1	1.1
Italy	0.8	0.84	0.8	0.9	0.9
Australia	1.7	1.59	1.5	1.6	1.5
Korea	2.5 (2)	2.51 (1)	2.4 (2)	2.6 (2)	2.7 (1)

Notes: The most recent year for which data on Canada are available is 2001.
Source: OECD. *Education at a Glance*. Paris. 2005.

7.2.4 DEMOGRAPHIC TRENDS AND INSTITUTIONAL CAPACITY

» The student-age population will continue to grow in Canada until 2012, and is then expected to decline.

Demographic changes in Canada have always had a dramatic impact on education. The Boomer generation of 10 million people born between 1947 and 1966 created an enormous demand for educational services. The smaller Bust generation, born between 1967 and 1979, resulted in diminished demand. The impact of the larger Echo generation, born from 1980 to 1995, is now being felt by the educational systems across the country.⁸⁴

Demographic projections suggest that Canada's PSE sector will face significant pressures in the next decade. Canada—along with the United States, the United Kingdom, Germany, New Zealand and Turkey—is projecting increases in the 20–29 age cohort up until 2012, “posing a challenge to tertiary education systems in these countries.”⁸⁵ This contrasts with projections in several other OECD countries, where there is a predicted decline in the proportion of their population in the 20–29 age cohort.

University of Toronto economist and demographer, David Foot concludes:

“Over the next decade Canadian post-secondary institutions can be expected to experience enrolment

growth. After that, the boom becomes a bust as the declining births of the 1990s gradually impact enrolments. Increasing participation rates can modify these demographic trends, but after the mid–2010s Canadian colleges and universities will be increasingly relying on higher immigration levels, rising participation rates and older students for enrolment growth.”⁸⁶

Short-term anticipated student demand is expected to outstrip institutional capacity in many cases, which may pose barriers to access. For the university sector alone, the AUCC “Trends” document looked at three categories of likely capital demand: expansion required for anticipated enrolment growth; ongoing maintenance of facilities; and *catch-up* of accumulated costs of maintenance that were put off over past years because of resource limitations. The AUCC estimate was that, when added together, “Universities will likely face, over the next ten years, additional annual expenditures ranging between \$1.4 billion and \$1.9 billion to accommodate projected growth.”⁸⁷

Data are not collected for the college sector on this issue.

84 Foot, D. (Spring 2001). Canadian education; demographic change and future challenges. *Education Canada*. Vol. 41 Issue 1. p.24.

85 Council of Ministers of Education Canada (2004). *Education at a Glance*. OECD Indicators. Country Profile for Canada.

86 Foot, D. (Spring 2006). The Baby Boomer's Lingering Echo. *Academic Matters*. pp. 6-9.

87 Association of Universities and Colleges of Canada (2002). *Trends in Higher Education*. Ottawa. p. 73.

HOW CANADA'S PSE MEASURES UP

7.2.5 FLEXIBLE, ALTERNATE DELIVERY

» Canada proactively planned for flexible, alternate delivery methods, but has lagged in implementation due to a lack of coordination and investment to advance e-learning.

In the past few years, available and emerging technology has encouraged the post-secondary sector to invest in e-learning, which encompasses a wide variety of technologies and approaches. E-learning is seen to have the potential to deliver quality PSE to all Canadians regardless of where in the country they reside, or when they would like to access learning opportunities.

Given the realities of Canada's geography, the country has a long history of providing distance education and many institutions have moved to deliver courses on-line. As of 2001, more than 5,000 courses were available on-line across the country.

Table 7.2.5.1, adapted from the *E-Learning in Tertiary Education Report*, provides an overview of international positions on e-learning. The information summarizes responses to the question, "What estimated proportion (%) of current programs/courses offered by your institution have the following kinds of on-line component?"

Canada had an early lead in this burgeoning field. As early as 2000, a CMEC/Industry Canada Advisory Committee for Online Learning, chaired by David Johnston, President of the University of Waterloo, provided comprehensive advice on ways to build on Canada's strength in the post-secondary sector. The Committee's report, entitled *The e-learning e-volution in colleges and universities*, set out an action plan to expand significantly online learning in Canadian post-secondary education to meet the learning needs of individual Canadians, improve Canada's

Table 7.2.5.1 **What estimated proportion (%) of current programs/courses offered by your institution have the following kinds of online component?**

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.

economic competitiveness and sustain the health of our civil society in this knowledge-intensive era. Among the elements included in the action plan were: initiatives intended to encourage innovation in post-secondary education and place learners at the centre of their own education; measures intended to enhance the quality of the PSE learning experience through new institutional strategies; support for the creation of more high-quality online learning materials, and investments in learning research and learn-ware product development; and the creation of a critical mass to take advantage of coast-to-coast pan-Canadian synergies.

The response to this report appears to have been muted at best. Canada and the PSE community would be well-advised to revisit the elements of the proposed action plan and to take action that would help restore the country's leadership role in e-learning. A number of countries, including the U.S., Australia and the U.K., are already in the process of implementing aggressive national e-learning strategies.

7.2.6 CREDIT TRANSFER

» Lack of a pan-Canadian system for credit transfer may hinder student mobility.

A recognized system for credit transfers between PSIs—both within a province and across the country—is one way to increase student access to PSE. If students can be assured they will receive appropriate recognition for completed studies at any recognized university, student mobility will increase and efficiencies in the system will improve.

A Ministerial Statement of Credit Transfer from CMEC in 2002 summarized the benefits of a credit transfer system: "The ability for learners at all stages of their lives and careers to easily move into, between, and out of post-secondary education is a key component in building a post-secondary education system that makes lifelong learning a reality."⁸⁸

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There is currently no uniform approach to credit recognition or transfer from one PSE institution to another. Provinces and territories have individual arrangements, with a variety of models in place. Some provinces have a specific body mandated to facilitate admission, articulation and transfer agreements, while

others rely on co-operation among PSE institutions to address credit transfer arrangements. Canada does not have a mechanism to coordinate credit transfer across the country. There are no data available on how students fare in transferring credits as they move between institutions and provinces.

EUROPEAN RECOGNITION OF PRIOR LEARNING⁸⁹

Sweden	Starting in autumn 2003 all higher education institutions became obliged to assess prior and experiential learning of applicants who demand such an assessment and who lack formal qualifications (or documentation of such qualifications).
Germany	The introduction of the European Credit Transfer System (ECTS) and course modules has significantly improved the flexibility and transparency of study courses. ECTS is a purely quantitative measure of the student's overall workload resulting from the study modules and examinations necessary for the successful completion of his or her course of study.
France	Recognition of prior vocational skills was instituted by law in 1992 in addition to other provisions specific to higher education made law by 1985 decrees. The <i>Social Modernization 2002</i> law and the <i>2002 decree</i> aim to institute a right to ask for recognition of one's prior vocational skills, to widen this principle to all certificates and degrees, and to provide arrangements for some aspects of the procedure. This makes it possible to award a degree fully with recognition of prior learning. Recognition of prior learning is made by a particular jury, specific to each degree, from the analysis of a file made by the candidate and after an additional interview.

7.2.7 PRIOR LEARNING ASSESSMENT AND RECOGNITION (PLAR)

» All provinces have moved to recognize prior learning but there are few standards and little coordination across the country.

Recognition of prior learning is based on the premise that learning can occur in many settings—at school, in the workplace, through life experience—or in another country. 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 make the transition to writing examinations for professional designation.

Most colleges in Canada have adopted PLAR practices. 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.

A number of 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.” (Definition from State of the Field Review, Prior Learning Assessment and Recognition.⁹⁰

⁸⁹ The Bologna Process National Reports (2005) <http://www.bologna-bergen2005.no/> accessed in July 2006.

⁹⁰ Wihak, C. (2006). State of the Field Review: Prior Learning Assessment and Recognition. Submitted to the Canadian Council on Learning. <http://www.ccl-cca.ca/NR/rdonlyres/33631C80-A67B-4AF5-A37F-D53C8A756380/0/PLARfinalreportMarch26E.pdf>

HOW CANADA'S PSE MEASURES UP

Quebec	First province to implement PLAR province-wide at community college level; adopted PLAR policies for adult learners in secondary schools; reviewing PLAR in the context of an overall policy on adult learning with possible development of a regulatory framework
BC	PLAR initiatives have been launched, including establishment of the Centre for Curriculum, Transfer and Technology, and adoption of PLAR policies for adult learners in secondary schools
Ontario	PLAR initiatives have been implemented, and adoption of PLAR policies for adult learners in secondary schools
NB	PLAR initiatives
NS	PLAR initiatives
NFLD	PLAR initiatives
MB	PLAR policy
SK	Adopted PLAR policy framework
PEI	Support in principle
AB	PLAR encouraged in high school; published survey of PLAR best practices
NWT	Co-operating with Athabasca University on PLAR project
Nunavut	Co-operating with Athabasca University on PLAR project

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

7.2.8 PUBLIC OPINION ON PSE ACCESS

» Canadians are concerned about PSE accessibility for qualified students.

A majority of Canadians believe access to PSE is currently inequitable. Results from CCL's April 2006 public opinion poll found 59% of respondents think that many Canadians who are qualified do not have the opportunity to attend

post-secondary institutions in Canada. The remaining 37% who responded believe the vast majority have the opportunity to attend.

7.3 Conclusions

7.3.1 THE EXTENT TO WHICH OBJECTIVES ARE BEING MET

1. The fact that Canada consistently ranks in the top three OECD countries in participation rates, educational attainment and investment as a percentage of GDP indicates that PSE is relatively accessible in Canada.
2. Many Canadians cite concerns about the affordability, flexibility or responsiveness of PSE to their needs.
3. E-learning has the potential to enhance both PSE access and the educational experience. Canada was an early leader in online learning, but has not made the necessary investment to coordinate and advance e-learning across the country.
4. Some PSIs—especially universities—are slow to adopt flexible admission standards that recognize both informal and experiential learning.
5. Canada does not have a standard credit transfer system. This poses a barrier to student mobility and may result in unnecessary costs and inefficiencies for both learners and PSE in general.

7.3.2 WHAT WE NEED TO KNOW NEXT ABOUT ACCESS TO QUALITY PSE

1. Regular and ongoing analysis of data is essential. The lack of college data (which have been collected since 2000, but not compiled for use) is a major barrier to a comprehensive understanding of PSE in Canada.
2. Canada needs to participate fully in international-comparison exercises, such as those conducted by the OECD. To do so, it must provide up-to-date data covering all post-secondary institutions. Without these data, international comparisons are dated and of limited use.
3. To monitor mobility, Canada should implement a national system of student identifiers.
4. Standard practices for prior learning assessment and recognition must be implemented across the country.
5. National measures of institutional capacity are required to support efficient and effective planning for future needs. Analysis of anticipated student demand against institutional capacity would help determine if barriers or mismatches exist.

7.3.3 A POSITIVE RECORD – AN UNCERTAIN FUTURE

A positive record

Access to PSE for qualified learners has been the stated goal of all levels of government for the past half century. During this period, existing PSIs have increased capacity for additional students; new universities, colleges and institutes have been established; tax credits, student loans and savings incentives to make PSE relatively more affordable have been introduced or expanded. Overall investments in PSE have remained stable, with increases in the past four years, and the country is being rewarded with relatively high participation and attainment rates.

An uncertain future

The need for PSE in the 21st century is greater than ever before. There is escalating demand for PSE-qualified workers to fill the high-skill occupations that now make up the majority of positions in the job market. To replace Canada's aging workforce, our country will increasingly require the contributions of non-traditional workers and, in turn, non-traditional learners, especially working-age adults, members of under-represented groups, and people living in rural and remote regions.

Without dramatically enhanced access to PSE, there will be an expansive gap between the 70% of jobs that require post-secondary qualifications and the 44% of Canadians who currently possess them. Ensuring equitable access to learning opportunities and developing the necessary flexibility to accommodate all learners will be vital to respond to Canada's growing labour and skills shortages.

In the short term, post-secondary institutions will be challenged to meet these needs and expectations. Canada's early lead in e-learning has been squandered through a lack of political will to ensure coordination of efforts in this field. Canada must accelerate and coordinate national activities and initiatives to increase access to PSE and develop consistent measures to gauge progress.

This chapter has underlined a recurring theme of this report: failure to achieve pan-Canadian coordination is impeding both opportunity for individual learners and the development and recognition of skills and competencies required for the Canadian economy and society. As in Chapter 6, which outlined the absence of Canadian post-secondary institutional accreditation mechanisms, Chapter 7 demonstrates how failure to coordinate PSE nationally also risks undermining Canada's international competitiveness, the distinctive Canadian identity of our education system and ultimately, of our society.

8.1 Introduction

The obvious personal benefits of PSE for individuals make it desirable for all Canadians to have the opportunity to access post-secondary education, whatever their economic and social background. From an economic perspective, Canada's population growth is such that demand for skilled labour cannot be met without the increased employment of non-traditional groups.

Given PSE's significant contribution in fulfilling both societal and economic objectives, it is important to understand not only general PSE participation rates (as discussed in Chapter 7) but also the profile of those who access post-secondary education in Canada. Identifying which groups do—or do *not*—access PSE is important to policy- and program-makers to understand how to help members of under-represented groups make the successful transition to PSE.

The Council of the Federation, at its Summit in February 2006, recognized the importance of encouraging currently under-represented groups to participate in the labour force. "Full participation will be necessary to ensure Canada has the skilled labour supply and educated citizenry necessary to compete in the world economy."⁹¹ Also, CMEC identified Aboriginal education as one of its three key priorities in 2004.

To understand accessibility, it is important to examine barriers to access, both for the total population and for specific groups.

CANADIAN ATTITUDES TOWARD PSE

There is broad agreement (80%) that student debt is too onerous. Older respondents (55+), women and residents of Atlantic Canada are much more likely to believe that debt levels are too large. In contrast, those from families with incomes over \$80,000 are significantly less likely to think the debt load is too heavy.

Source: Pacific Issues Partners. *Canadian Attitudes on Post-secondary Education: A Report for the Canadian Council on Learning*. Ottawa: Canadian Council on Learning, 2006.

A study by Dianne Looker examined factors that affect the decisions of Canadian youth not to pursue PSE.⁹² Relevant factors and demographics in this decision included:

- Low parental income
- Low parental education
- Males
- Francophones
- Rural youth
- Aboriginal youth
- Other minorities
- Physical disabilities
- Learning disabilities
- Single parent families
- Non-academic stream
- Low academic performance
- Negative attitudes to education

This list of factors was used to frame the discussion in this chapter.

91 Council of the Federation (2006). Discussion Guide: The Future of Post-secondary Education and Skills Training in Canada. Prepared for Competing for Tomorrow: A Post-secondary Education and Skills Summit. Ottawa. p.13.

92 Looker, D. (2001). Why Don't They Go? Factors Affecting the Decisions of Canadian Youth not to Pursue Post-secondary Education. Millennium Research Series. Canada Millennium Scholarship Foundation. Canada.

8.2 What we know now

Several recent Canadian studies, particularly those by Statistics Canada and the Canada Millennium Scholarship Foundation, have examined access to PSE to gain insight into factors affecting participants, particularly for under-represented groups.

Even with the findings from these studies, it is difficult to complete a thorough assessment of access for these groups. Problems include significant gaps in the data, definitional problems that plague examination of the available data, and time series to evaluate progress over time are often not accessible.

An additional challenge is that the characteristics of each of the under-represented groups are quite distinct. While some barriers are common to all groups, unique and distinctive factors affecting PSE access for each particular group also exist.

The following indicators were selected to monitor performance and progress in increasing PSE participation and success of under-represented groups. Polling results are also included to underline the high priority the public attaches to access for these groups:

- Public opinion polling results
- High-school completion rates
- High-school dropout rates
- Participation of under-represented groups
 - low income
 - Aboriginal students
 - rural and remote youth
- Male/female PSE participation
- Immigrants

Dropout, participation and completion rates are informative measures of particular groups. Low-income, Aboriginal groups and rural youth were chosen for examination. Data for visible minorities and people with disabilities are extremely limited and do not allow for rigorous analysis, especially over time. Existing data tend to be descriptive of group characteristics, but do not help to

determine if progress is being made in increasing their access to PSE.

A gender analysis is also included, because recent trends show the gender gap has widened significantly since 1990, when male and female school attendance rates were almost identical.

Since the majority of immigrants to Canada are destined for the labour market, the main discussion about challenges and issues they face is included in Chapter 3. This chapter addresses some basic information regarding the levels of education of immigrants and their efforts to access formal training in the early years after their arrival in Canada.

Many of the international jurisdictions reviewed for the development of this report have set national objectives and/or benchmarks with regard to PSE access for under-represented groups:

- The EU views the participation of all social groups in education and training opportunities as essential to building the kind of society Europeans want and encourages countries to track socio-economic backgrounds of students. EU benchmarks include a maximum of 10% early school-leavers and having at least 85% of 22-year-olds complete upper secondary education by the year 2010.
- Australia's national objectives include the statement that "there must be equality of opportunity in higher education to allow individuals to reach their potential, regardless of circumstances and backgrounds." The Australian Institutional Assessment Framework has a variety of indicators that track individual institutional performance.
- New Zealand set increased participation rates of their native groups as a priority.
- The U.K. has identified "widening participation of under-represented groups" as an objective, and has designed indicators to track participation of these groups.

HOW CANADA'S PSE MEASURES UP

8.2.1 PUBLIC VIEWS

» Canadians believe there are barriers to PSE access for many qualified people.

Respondents to the April 2006 public opinion poll conducted by CCL were asked:

Do you believe that currently, in your province, the vast majority of people who are qualified to go to college or university have the opportunity to do so, or do you think that there are many people who are qualified to go but don't have the opportunity to do so?

A majority of respondents (59%) said that many qualified people do not have the opportunity to attend.

Table 8.2.1.1 **Accessibility of post-secondary education for qualified students**

	%
Vast majority have the opportunity to attend	37
Many qualified don't have the opportunity to attend	59

Source: Pacific Issues Partners. *Canadian Attitudes on Post-secondary Education: A Report for the Canadian Council on Learning*. Ottawa: Canadian Council on Learning, 2006.

Table 8.2.1.2 shows the relationship between views on access and overall assessments of the post-secondary system, showing that poor assessments of the system's performance are strongly associated with Canadians' belief that PSE access is limited for qualified students.

Table 8.2.1.2 **The impact of views about access by qualified students on assessments of the post-secondary sector**

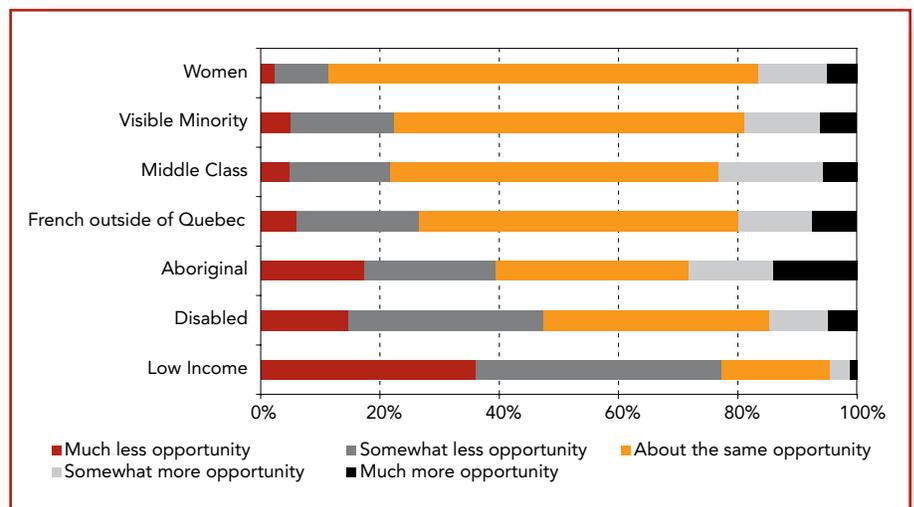
OVERALL ASSESSMENT OF POST-SECONDARY SYSTEM	VAST MAJORITY HAVE THE OPPORTUNITY TO ATTEND	MANY QUALIFIED DON'T HAVE THE OPPORTUNITY TO ATTEND
Excellent	47	49
Good	40	57
Fair	33	64
Poor	21	77
Average for all respondents	37	59

Source: Pacific Issues Partners. *Canadian Attitudes on Post-secondary Education: A Report for the Canadian Council on Learning*. Ottawa: Canadian Council on Learning, 2006.

Figure 8.2.1.1 shows how Canadians feel about opportunities for qualified students from different groups in society:

"Do you feel that 'qualified' students [from the specific group] have much less opportunity, somewhat less opportunity, about the same opportunity, somewhat more opportunity, or much more opportunity than others to get a college or university education?"

Fig. 8.2.1.1 **Opportunity for qualified students from different groups**



Source: Pacific Issues Partners. *Canadian Attitudes on Post-secondary Education: A Report for the Canadian Council on Learning*. Ottawa: Canadian Council on Learning, 2006.

Respondents overwhelmingly identify "qualified students from low-income families" as having less opportunity than others to obtain a college or university education. Over three-quarters of respondents (76%) believe that low-income students have much less (35%) or somewhat less (41%) opportunity than others.

Public opinion with regard to Aboriginal students diverges. While 38% say Aboriginals have less opportunity, 24% say they have more opportunity than others. Less than a third of respondents believe that Aboriginal students have the same opportunity as others.

When asked about priorities for college and universities to improve over the coming years, respondents ranked "improve access so that more people who want to further their education will be able to attend" as their first choice. An additional 20% ranked it as their second choice, underscoring the importance of future improvements in this area.

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8.2.2 HIGH-SCHOOL COMPLETION RATES

» Canadian high-school completion rates are below the OECD country mean.

Canadian high-school graduation rates are below the OECD country mean. This means that many Canadians who do not complete high school are faced with transition challenges if they decide at a later date to pursue post-secondary education.

Table 8.2.2.1 **Upper-secondary graduation rates, Canada and G7 countries, 2001**

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

	GRADUATION RATE (%)		
	MALE	FEMALE	BOTH GENDERS
Canada	71	80	75
France	82	87	85
Germany	89	94	92
Italy	76	83	79
Japan	91	95	93
United Kingdom
United States	70	73	72
OECD country mean	78	85	82

.. not available for a specific reference period

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. Table C5.1

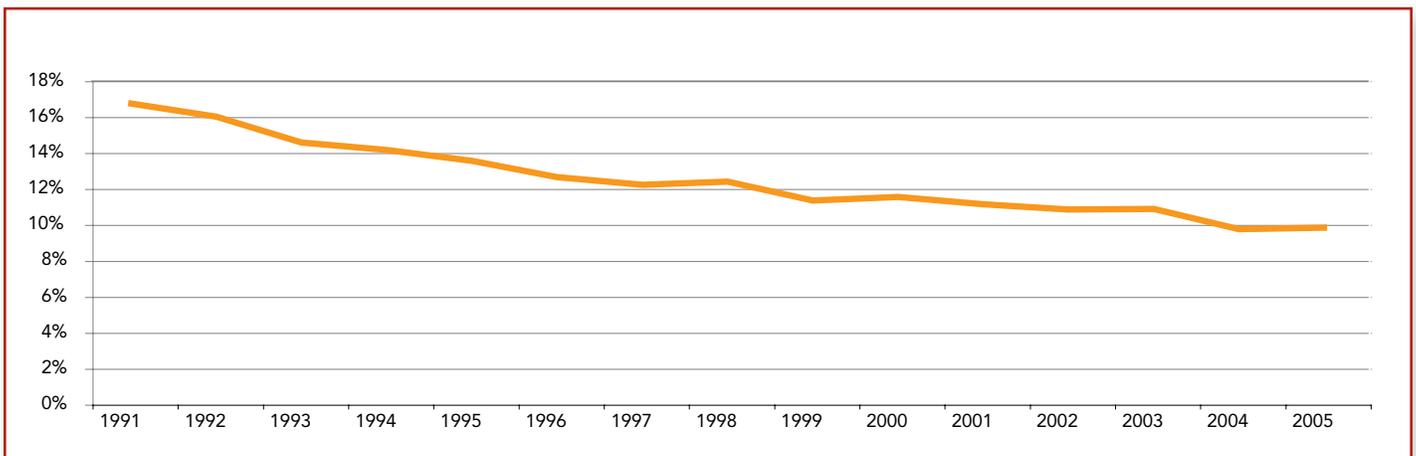
8.2.3 HIGH-SCHOOL DROPOUT RATES

» Canada's high-school dropout rates have declined over the last decade, but rates for rural, Aboriginal and low-income youth are above rates for the total population.

The transition from high school to PSE or the job market is one of the most important transitions a young person can make. Canada's high-school dropout rates, as measured by the percentage of Canadians aged 20–24 who did not finish high school, have been declining over time. CCL's Lessons in Learning⁹³ on Canada's

high-school dropout rates show that between 1991 and 2004, dropout rates for this group decreased from 17% to 10%. This measure of dropouts differs from the high-school completion rate, in that it looks at a wider population of 20- to 24-year-olds, while the completion rate measure deals with youth of high-school age.

Fig. 8.2.3.1 **Dropout rate, 1991–2005**



Source: Statistics Canada, Labour Force Survey, 2005.

93 Canadian Council on Learning (December 2005). Good News; Canada's High-School Dropout Rates Are Falling. Lessons in Learning. <http://www.ccl-cca.ca/CCL/Reports/LessonsInLearning/LiL-16Dec2005.htm>

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Information regarding dropout rates for under-represented groups is limited, although some data are available for two groups—rural youth and Aboriginal youth. Dropout rates remain high in Canada's small towns and rural areas, where the 2004–2005 rate was 16%, roughly double the rate for metropolitan areas.⁹⁴

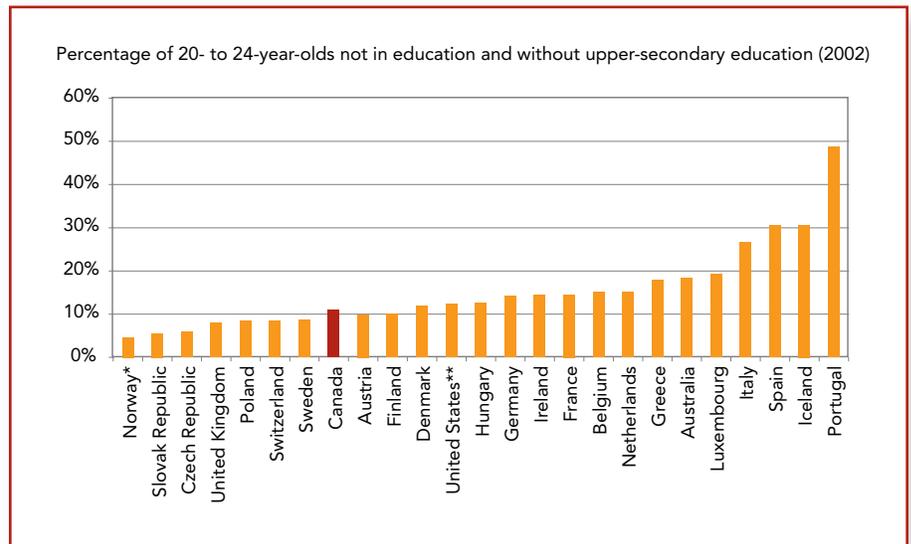
Data from the Census and from the Aboriginal Peoples Survey show that dropout rates for Aboriginal youth decreased between 1981 and 2001 in the 11 metropolitan areas examined. However, data showed that Aboriginal youth are less likely to finish high school than non-Aboriginals.⁹⁵

Although information on dropout rates for socio-economic (income) groups is not collected, Patrice de Broucker's study⁹⁶ uses parental education as a proxy for family socio-economic background. His study found that, in all OECD countries, the proportion of 20- to 24-year-olds who have dropped out and live with their parents is closely correlated to lower levels of education among those parents.

- Canada's high-school dropout rates are higher than in many OECD countries.

Despite a general decline in high-school dropout rates over the last three decades, Canada's rates are still relatively high compared to other jurisdictions. Using the percentage of 20- to 24-year-olds not in education and without upper-secondary education as a measure, Canada's rate is approximately 9.8%. Seven other countries have lower rates, including Norway, U.K., Switzerland and Austria; the U.S. rate is about 12%.

Fig. 8.2.3.2. **Percentage of 20- to 24-year-olds not in education and without upper-secondary education, 2002**



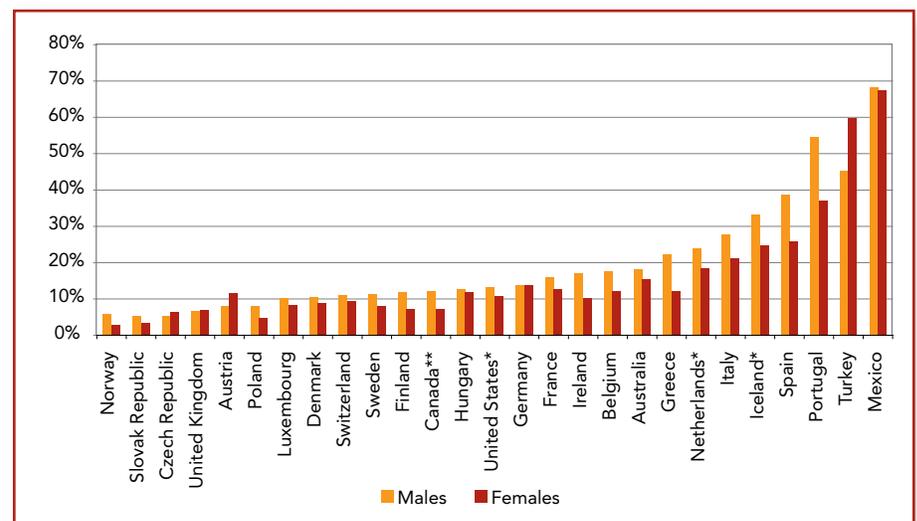
*2003 data
**2001 data

Source: OECD INES-Network B, Special YALLE data collection.

Figure Source: De Broucker, P. Without a Paddle, What to Do about Canada's Young Drop-Outs? Canadian Policy Research Networks, Ottawa. 2005.

Statistics show that young men are much more likely to drop out than young women. Evidence shows that young males in high school tend to have more trouble with the structure of school, engagement issues, and are more readily drawn to labour market opportunities before completing high school. Higher dropout rates for young men are a trend found across all OECD countries.

Fig. 8.2.3.3 **Percentage of 20- to 24-year-olds not in education and without upper-secondary education by gender, 2003**



*2002 data
**2005 data

Figure Source: De Broucker, P. Without a Paddle, What to Do about Canada's Young Drop-Outs? Canadian Policy Research Networks, Ottawa. 2005.

Data Source: Statistics Canada, Labour Force Survey, 2005.

94 Ibid.

95 Ibid.

96 De Broucker, P. (2005), Without a Paddle, What to Do about Canada's Young Drop-Outs? Canadian Policy Research Networks, Ottawa.

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8.2.4 PSE PARTICIPATION OF UNDER-REPRESENTED GROUPS

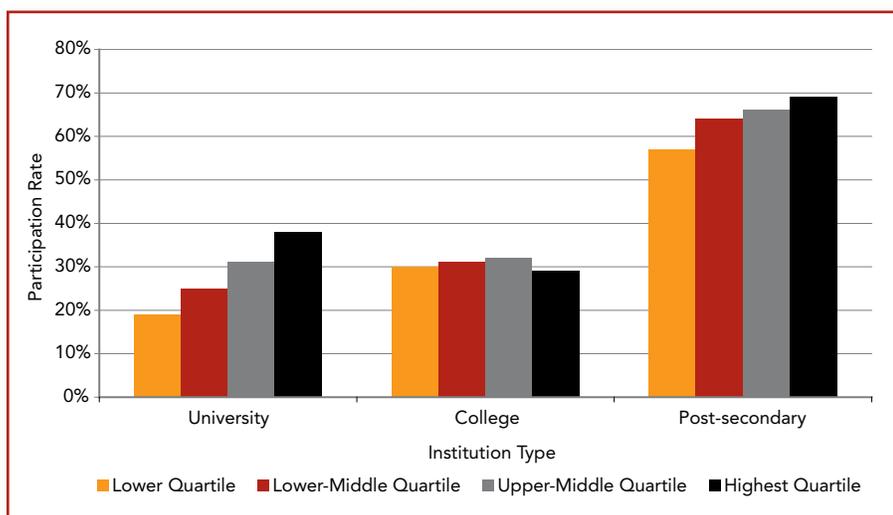
» Young people from families with lower incomes have lower PSE participation rates.

In the last few years, much attention has been paid to the impact of family background on a young person's decision to access PSE. Statistics reveal that young people from families with lower incomes have lower participation rates.

- Family income does not appear to affect college attendance, but young people from low-income families are only half as likely to attend university.

Young people from all income quartiles have an equal propensity to attend college. However, those from low-income families are only half as likely to attend university as youth from the highest income quartile. The difference in post-secondary participation for lower income students comes from significantly lower participation rates for university. On average, 29% of youth go on to university, but this ranges from 19% for young people from the lowest income quartile to 38% for youth from the top quartile. The increase in university participation rates by quartile was steady. University participation rates increased at the same rate with increasing income quartiles.

Fig. 8.2.4.1 Post-secondary, university and college participation rates of 18- to 21-year-olds by family income quartile



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

The October 2005 study⁹⁷ by Statistics Canada on participation rates, based on analysis of Survey of Labour and Income Dynamics (SLID) data, focussed on the relationship between socio-economic background and post-secondary access. It noted, "It is particularly important to understand the degree to which family income is related to post-secondary participation independently of other factors such as parental education, family composition, community size or location." The study stresses the importance of understanding which variables are most influential in decisions to attend PSE, because of the complex interplay of factors.

- The participation gap for students from low-income families does not appear to be narrowing.

Several studies have examined whether progress is being made in closing the gap in participation between lower-income students and those from higher-income families. The findings are not consistent.

The *Survey of Consumer Finances* analyzed by Corak, Lipps, and Zhao⁹⁸ shows the gap between the university participation of young people by family income narrowed in the period from 1979 to 1997, concluding that during this period lower income students increasingly attended PSE. The gap between the lowest income group (parental income of \$25,000 or less) and the highest group (parental income over \$100,000) was about 30 percentage points in the early 1980s. The differential was reduced to less than 20% by 1997—although it should be noted that there is much fluctuation in trend lines, and some narrowing of the gap appears to be due to declining university participation rates of higher income students in the late 1990s.

Other studies conclude that the participation gap between lower and higher income students did not change significantly over the 1990s. A study by Finnie, Laporte and Lascelles⁹⁹ uses the *School Leavers Survey* and *Youth*

97 Rahman A., Situ J., & Jimmo V. (2005) Participation in Postsecondary Education: Evidence from the Survey of Labour and Income Dynamics. Statistics Canada, Catalogue no. 81-595-MIE — No. 036.

98 Corak M., Lipps G., & Zhao J. (2003). Family income and participation in post-secondary education. Statistics Canada. Family and Labour Studies Division. Catalogue no. 11F0019MIE. Ottawa. <http://www.statcan.ca/english/IPS/Data/11F0019MIE2003210.htm>

99 Finnie, R., Laporte, C., & Lascelles, E. (2004). Family Background and Access to Post-secondary Education: What Happened over the 1990s? Statistics Canada Analytical Studies Branch Research Paper Series no.226. Catalogue no. 11F0019MIE.

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in *Transition Survey* data to show that participation rates of lower income students did not increase as rapidly as participation rates of higher income students.

Given the importance of access to PSE to Canada's economic and social goals, the need to develop a consistent and reliable method to track changes in participation rates by socio-economic groups is obvious. This would help to determine if the many programs and policies introduced over the last decade designed to close the participation gap have been successful.

- PSE attainment by Aboriginal Peoples has improved, but is still significantly below that of the total population.

One striking trend in PSE participation is the marked increase in attendance and completion among Aboriginal Canadians. A recent survey of First Nations people on reserve¹⁰⁰ evaluates barriers to PSE for Aboriginal people. It shows that, while PSE attainment for Aboriginal people has improved dramatically over the last 50 years, the educational attainment of 25- to 64-year-old Aboriginal people remains well below that of the total population. This is due almost entirely to the low participation of Aboriginal Canadians in university. Colleges have been much more successful in attracting Aboriginal people, with the proportion of Aboriginal Canadians with trade or college credentials now close to that of the total population.¹⁰¹ However, the overall gap is still very wide—8% at the college level and 23% at the university level.

The Canada Millennium Scholarship Foundation research¹⁰² outlines barriers faced by Aboriginal people that impact their PSE participation rates: inadequate funding, poor academic preparation, perceptions of not being welcome on campus, considering PSE not necessary. Profiles of Aboriginal college and university students show they tend to be older, married and have dependants.

The Canada Millennium Scholarship Foundation study¹⁰³ on Aboriginal people and Post-secondary Education quoted data from the Aboriginal Post-secondary Education and Labour Market Outcomes from Indian and Northern Affairs Canada. It showed a significant increase in the proportion of registered Indians and other Aboriginal people taking or having completed PSE from 1986 to 1996.

The table from the same study has been updated with 2001 Census material. The gap between native groups and the total population narrowed in 1991 and 1996 but

increased slightly in 2001—primarily because of the 1996 drop in “other Aboriginal people” aged 15–24 who were taking or had completed PSE.

Table 8.2.4.1 **Proportion of Canadians who were taking or had completed post-secondary education**

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%
	Total	23%	36%	43%
1991	15-24	19%	28%	40%
	25-44	44%	55%	60%
	45-64	26%	40%	43%
	65+	8%	18%	26%
	Total	31%	43%	48%
1996	15-24	20%	29%	41%
	25-44	49%	58%	64%
	45-64	37%	47%	50%
	65+	10%	20%	20%
	Total	37%	47%	51%
2001	15-24	20%	26%	43%
	25-44	53%	58%	69%
	45-64	45%	48%	56%
	65+	14%	21%	32%
	Total	40%	45%	55%

Source: Research and Analysis Directorate, Indian and Northern Affairs Canada, 1996 and 2005. Aboriginal Postsecondary Education and Labour Market Outcomes Canada 1996 and 2004. Statistics Canada, Census 2001.

Participation and completion rates for the Aboriginal group cannot be disaggregated, as only one category—“attending or have completed PSE”—is available. A breakdown of this data would be very useful.

- Participation rates for rural and remote youth are lower than for urban youth.

Frenette's study¹⁰⁴ found that family income and distance to a university have a substantial effect on participation rates. The study demonstrated that rural students were less likely to attend university, but only slightly so. He also found that students from high-income families outside commuting distance were almost six times more likely to attend university during the study period (1995–1999).

100 Canada Millennium Scholarship Foundation (2005). *Changing Course: Improving Aboriginal Access to Post-secondary Education in Canada*. Millennium Research Note #2.
 101 Holmes, D. (2005). *Embracing Differences: Post-secondary Education among Aboriginal Students, Students with Children and Students with Disabilities*. Canada Millennium Scholarship Foundation, no.18.
 102 Canada Millennium Scholarship Foundation (2005). *Changing Course: Improving Aboriginal Access to Post-secondary Education in Canada*. Millennium Research Note #2.
 103 Malatest & Associates Ltd. (2004). *Aboriginal Peoples and Post-secondary Education. What Educators Have learned?* Millennium Research Series no.8. Canada Millennium Scholarship Foundation. Canada.
 104 Frenette, M. (2002). *Too Far To Go On? Distance to School and University Participation*. Statistics Canada Business and Labour Market Analysis Division, Research Paper no.191. Catalogue No. 11F0019MIE. Ottawa.

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The study examined the impact of distance from a university and concluded that students living beyond 80 km from a university were only 58% as likely to attend university as students living within a 40 km radius. Frenette reported that the distance mattered while the urban/rural classification did not, because of the fact that many urban areas did not have universities while some rural areas did.

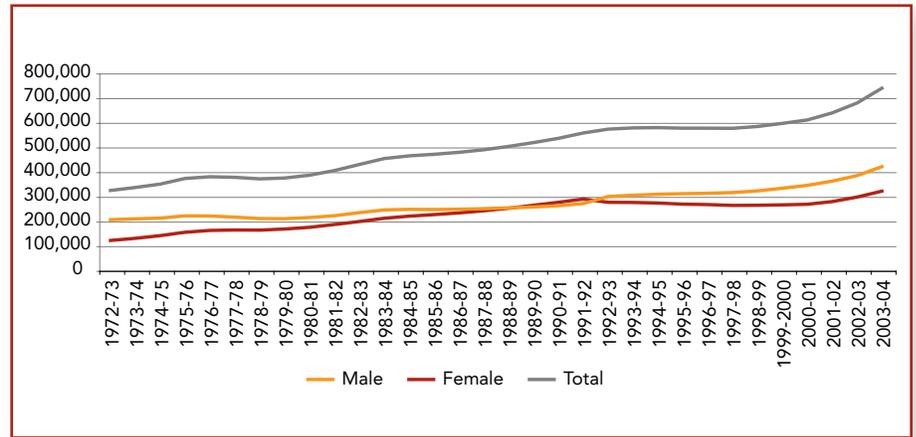
The SLID study also found that youth from rural areas attended university at a lower rate than urban youth, but the difference was small (30% for urban and 24% for rural). At the college level, the rates were similar (31% and 29%), perhaps reflecting the distribution of many colleges in rural areas.¹⁰⁵

8.2.5 NOTE ON MALE/FEMALE PARTICIPATION

» Females are now in the majority in both universities and colleges.

The 1980s and 1990s witnessed a marked shift in the gender mix of students at the university level. During this period, female students accounted for approximately three quarters of the full-time enrolment growth.¹⁰⁶ Females are now the majority of university students in most provinces. The participation rate of young women has doubled since 1980, while male participation rates have grown more moderately.¹⁰⁷ However, men are still the majority in physical sciences and technical studies.

Fig. 8.2.5.1 Enrolments for Canada by sex,* 1972–1973 to 2003–2004



Data Source: Statistics Canada, Enhanced Student Information System.
*Figures are rounded to the nearest five (5). Figures below (5) are confidential.

Figures 8.2.5.1 and 8.2.5.2 show that the female graduation rate has risen steadily over the past decade, to reach roughly 62% in 2003.

Fig. 8.2.5.2 Graduation rate, undergraduate level, by gender, Canada, 1992 to 2003.

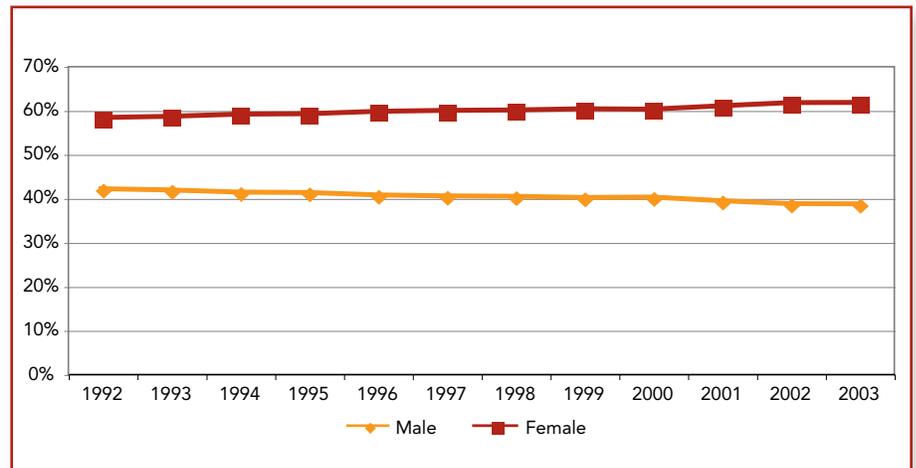


Figure Source: Statistics Canada, Enhanced Student Information System.

¹⁰⁵ Frenette, M. (2003). Access to College and University: Does Distance Matter? Statistics Canada Analytical Studies Branch Research Paper Series n. 201. Catalogue No. 11F0019MIE.

¹⁰⁶ Junor S. & Usher A. (2004). Price of Knowledge. Access and Student Finance in Canada. Millennium Research Series. Millennium Scholarship Foundation. Canada.

¹⁰⁷ Association of Universities and Colleges of Canada (2002). Trends in Higher Education. Ottawa.

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Female graduates at the master's and PhD levels also outnumber the number of males receiving graduate degrees.

In colleges, full-time female students outnumber full-time male students, although male students continue to be in the majority in trade and vocational programs. As of 1999–2000, the last year for which college data are available, female full-time students were 55% of the total college enrolment, a figure that had been stable since 1990.¹⁰⁸

A better understanding of the emerging gender gap in post-secondary education, and the resulting sociological effects of the rapidly changing gender distribution, is required.

Fig. 8.2.5.3 Graduation rate, graduate level, by gender, Canada, 1992 to 2003

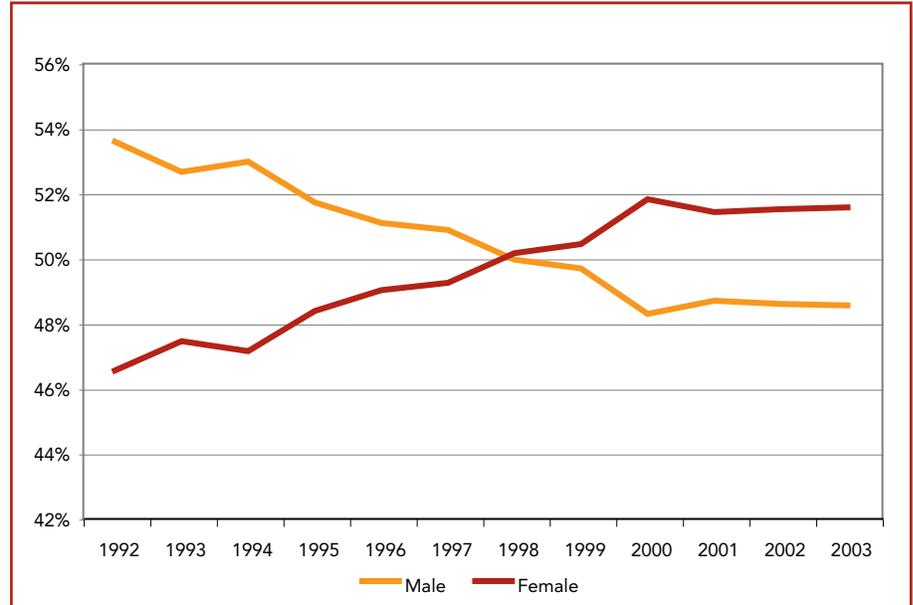


Figure Source: Statistics Canada. Enhanced Student Information System.

8.2.6 NOTE ON IMMIGRANTS

» While over 45% of immigrants to Canada have completed university and 15% have a trade or non-university diploma, the majority feel it is important to their future to take education and training in Canada.

In 2004, Canada accepted a total of 235,824 immigrants who wished to settle permanently in the country. An additional 225,000 were accepted as temporary residents, including foreign workers and business people, foreign students (30,600) and tourists.

Table 8.2.6.1 Permanent residents, 15 years of age or older, Canada, by level of education

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Trade certificate	9.2%	9.7%	9.5%	9.1%	7.6%	5.5%	4.8%	4.3%	4.5%	5.0%
Non-university diploma	7.4%	7.9%	8.3%	9.5%	9.1%	8.6%	9.4%	9.2%	9.9%	10.7%
Bachelor's degree	19.0%	21.7%	24.7%	26.6%	29.8%	32.3%	34.2%	34.1%	33.6%	32.3%
Master's degree	4.6%	5.7%	7.0%	7.0%	8.9%	9.8%	9.6%	10.1%	9.5%	11.3%
Doctorate	1.3%	1.5%	1.7%	1.8%	2.0%	1.8%	1.8%	1.8%	1.6%	2.0%

Source: Citizenship and Immigration Canada, Facts and Figures, 2004.

The level of education of new Canadians is high—over 45% of all immigrants planning to settle permanently have completed university and 15.7% have a trade certificate or non-university diploma.

Despite these high levels of education, the Statistics Canada *Longitudinal Study on Immigrants to Canada*¹⁰⁹ found almost 90% of immigrants considered that taking education or training courses was either very important or important to their future in Canada. The study also found that those with higher levels of education have a greater probability of taking further education.

Six months after arrival, those taking training were mainly enrolled in language training (67%), followed by 23% taking education leading to a degree or diploma and 8% taking job-related training.

Four out of 10 immigrants who attempted to access education and training reported difficulties, with language barriers and financial problems cited most frequently. There is very limited information available on the longer term trends of immigrants accessing education and training in Canada.

¹⁰⁸ Junor S. & Usher A. (2004). *Price of Knowledge. Access and Student Finance in Canada.* Millennium Research Series. Millennium Scholarship Foundation. Canada.

¹⁰⁹ *Longitudinal Survey of Immigrants to Canada (2005). Progress and Challenges of New Immigrants in the Workforce.* Statistics Canada, Social and Aboriginal Statistics Division. Catalogue No. 89-615-XIE, 2005. Ottawa.

8.3 Conclusions

8.3.1 THE EXTENT TO WHICH OBJECTIVES ARE BEING MET

1. Canada has made substantial progress in increasing participation rates for under-represented groups, especially among low-income and Aboriginal youth.
2. Despite this progress, Canada has not yet achieved equality of PSE participation rates and will require additional program and policy interventions to achieve this objective.
3. The dynamics of lower PSE participation rates start in secondary school, where high-school dropout rates for rural, Aboriginal and low-income youth are above rates for the total population. Current high-school dropout levels in Canada are still relatively high compared with other countries.
4. Canada has been very successful in increasing PSE participation for women, who now are in the majority in both the university and college sectors.

8.3.2 WHAT WE NEED TO KNOW NEXT ABOUT UNDER-REPRESENTED GROUPS

1. Time-series data to track trends in PSE participation of under-represented groups need to be developed, gathered and analyzed.
2. Comprehensive information that tracks the dropout rate and characteristics of under-represented groups is critical.
3. A better understanding of the dynamics of male post-secondary participation is required, given the dramatic shift in gender mix in PSE over the last 20 years.
4. Attention must be paid to increasing the participation rates of youth from low-income families.

8.3.3 A POSITIVE RECORD – AN UNCERTAIN FUTURE

A positive record

There has been significant progress in raising the PSE participation rates of some under-represented groups. The most notable improvement is in female participation rates, with females now constituting the majority of the student body on Canadian campuses. Aboriginal participation and attainment rates have also increased, although representation from this group still falls short of PSE levels attained by the total population.

An uncertain future

Demographic projections predict demand for skilled workers will outstrip supply. Failing to raise the education levels of members of these groups means that many jobs requiring skilled workers will go unfilled. The successful completion of PSE by under-represented groups is vital to realize Canada's objective of having a skilled and adaptable workforce. Increasing access to PSE for these groups is equally crucial and ensures they have equitable access to the social and economic benefits of PSE. It will enable them to participate fully in all facets of society.

Canada must develop a range of policy and program options that will enhance access for learners from under-represented groups.

9.1 Introduction

Adult education and training has not traditionally been a central role of post-secondary education, with the exception perhaps of vocational schools. A majority of PSE students have historically been, and continue to be, youth moving directly from secondary schools or CEGEP into community college or university.

However, the old lockstep model of education, then work, then retirement, is inadequate and outdated, given the relentless rate of change that marks the 21st century economy and society. With up to 70% of new jobs requiring PSE qualifications and nearly nine million working-age Canadians in need of literacy or job-related skills development, post-secondary institutions will increasingly be called on to meet the *lifelong* and *life-wide* needs of non-traditional learners.

Canada's premiers, in their discussion on the future of post-secondary education and skills training¹¹⁰, stressed that:

“Continuous learning throughout life is an important issue to all Canadians. The availability of enough people with an adaptable and flexible range of skills is important to our economic competitiveness and prosperity. As the work world becomes more complex, both employed people and displaced workers need to be continually retraining.”

CCL has established two of its five knowledge centres—the Adult Learning Knowledge Centre, based in the Atlantic provinces and the Work and Learning Knowledge Centre, based in Ontario—to examine specific elements of the larger phenomenon of lifelong learning. CCL's Composite Learning Index (CLI) also presents indicators and data that focus on lifelong learning issues.

110 Council of the Federation (2006). Discussion Guide: The Future of Post-secondary Education and Skills Training in Canada. Prepared for Competing for Tomorrow: A Post-secondary Education and Skills Summit. Ottawa. p.16.

INTERNATIONAL APPROACHES TO LIFELONG LEARNING¹¹¹

<p>U.K.</p>	<p>The U.K. Government is committed to encouraging lifelong learning so that more people can fulfil their potential and operate effectively in a changing labour market throughout their working lives. Higher education policies support the maximization of participation in and attainment through learning.</p> <p>The government introduced Foundation Degrees in 2001 that offer a vocational route into higher education, allowing those who successfully complete the qualification to progress to honours and beyond. Short master's courses are important means of providing and certifying continuing professional development.</p> <p>The government supports part-time study by making financial provisions for students in the form of a means-tested course grant and a statutory fee grant. The Sector Skills Councils are in the process of developing Sector Skills Agreements and are specifically identifying how higher education can respond to higher level skill needs. These include the development of flexible, progression routes into higher education from age 14 onwards and support for continuous professional development for the existing workforce.</p>
<p>Sweden</p>	<p>Swedish higher education institutions have a long tradition of offering their courses and programs to students with different backgrounds, students working part- or full-time, etc. The fact that the system of higher education is built on an accumulation of modules and credit points also enhances the possibilities for lifelong learning and for moving in and out of the system.</p> <p>In 2001, the government initiated the Swedish Net University, which coordinates and markets distance education already offered by institutions.</p>
<p>Germany</p>	<p>The federal government and the states approved a joint strategy for lifelong learning in the Federal Republic of Germany at the meeting of the Federation Commission for Educational Planning and Research Promotion on July 5, 2004.</p>
<p>France</p>	<p>For the French, lifelong learning is already embedded in the principles that rule the recognition of degrees and periods of study. This recognition is now easier, with the reform of the recognition of previous learning in 2002 in order to generalize higher education training courses, and students' previous learning—either studies abroad in a public or private training institution or organization, or learning from professional experience in France or abroad. It is not recognition of an automatic right to a degree, but recognition of a right given to any individual person to have all one's life experience and learning validated for the award of a degree.</p>

9.2 What we know now

There are a number of important data sources and studies on lifelong learning. The 2003 Adult Education and Training Survey, published in 2004, contains information regarding participation rates in various forms of training among the employed population for 1993, 1997 and 2002. It also includes similar statistics for participation in employer-supported, job-related training activities.

Internationally, the OECD's Education at a Glance reports on participation rates in continuing education and training for 25- to 64-year-olds by gender and type of training; participation in job-related training activities among all training activities; and participation rate (PR) by level of educational attainment. The OECD also conducted, through CMEC and HRDC, a review of Canadian adult education in 2003 and found it to be seriously deficient. In particular, the OECD report stressed that the lack of coordination and policy coherence among provincial and federal governments in Canada impedes access to adult learning information and opportunities. **There is a certain risk with decentralization that equity objectives can be lost and that quality control can be at risk.**¹¹² The Adult Literacy and Life Skills Survey¹¹³ (ALL) collected data from seven countries or regions in 2003, and built on earlier adult literacy studies conducted between 1994 and 1998. ALL went beyond the former surveys in a number of ways, and expanded the definition of skills to include not only prose and document literacy but also numeracy (mathematical competence) and problem-solving skills.

Statistics Canada published a study in March 2006—based on the Survey of Labour and Income Dynamics—that investigated participation in adult schooling and its earnings impact in Canada.

A study by Myers and De Broucker (2006) examines Canada's adult education and training and how it responds to the needs of less educated adults.¹¹⁴

The following measures illuminate several dimensions of adult learning in Canada. Each of these is examined in detail in this chapter:

- Adult literacy levels—chosen because of the growing body of research findings that literacy is a critical indicator;
- Participation in adult education and training—a measure of the extent to which adults access education and training;
- Adult learners in job-related training—a more specific focus on training related to employment, which is increasingly important given rapidly changing employment requirements of modern knowledge-based economies;
- Employer support for training—an even more specific focus, given the relationship between many kinds of adult education and work-related learning that is closely tied to the needs of the labour market and economy; and
- Unmet needs—an indicator that helps understand the gap between demand and supply, and issues related to access.

9.2.1 ADULT LITERACY LEVELS

» 40–60% of Canadians aged 16–65 possess literacy, numeracy and problem-solving skill levels at or above minimum levels to function adequately in modern society.

Some consider that measures concerning literacy reflect shortcomings of the elementary and/or secondary school system; that people who graduate from high school must be *literate*. This assumption is contradicted by results from surveys administered in 1994 and 2003, which reveal that more than two in five working-age Canadians have literacy levels below the threshold considered by experts to be the “minimum for persons to understand and use information contained in the increasingly difficult texts and tasks that characterize the emerging knowledge society and information economy.”¹¹⁵

Literacy is now understood to encompass much more than just the ability to read; it also includes such concepts as numeracy and problem solving. Literacy levels are measured and compared on a scale from lowest (level 1) to highest (levels 4 and 5). Literacy at levels 1 and 2 is generally considered to be below the minimum needed to function effectively. The red text box below, entitled Literacy Levels, was included in a 2006 report by the Conference Board of Canada.¹¹⁶

112 OECD (2003). *Beyond Rhetoric: Adult Learning Policies and Practices*. Paris. p. 89.

113 Statistics Canada and OECD (2005). *Learning a Living: First Results of the Adult Literacy and Life Skills Survey*. Ottawa–Paris.

114 Myers, K. & De Broucker, P. (2006). *Too Many Left Behind: Canada's Adult Education and Training System*, Canadian Policy Research Networks. Research Report W34.

115 Statistics Canada and OECD (2005). *Learning a Living: First Results of the Adult Literacy and Life Skills Survey*. Ottawa–Paris. p. 35.

116 Campbell, A. & Gagnon, N. (2006). *Literacy, Life and Employment: An Analysis of Canadian International Adult Literacy Survey (IALS) Microdata*. Conference Board of Canada. p. 1.

LITERACY LEVELS

Literacy Levels

The International Adult Literacy Survey (IALS) measures literacy on a five-level scale, where level 1 is the lowest and level 5 is the highest. Descriptions of typical competencies and the percentage of Canadians (aged 16 to 65) at each level on the prose scale illustrate the differences between the five levels.*

IALS Prose Literacy Levels

Level 1: 16.6% of Canadians

At this level, respondents show very poor prose literacy skills. Individuals may, for example, be unable to determine the correct amount of medicine to give a child from information printed on a package.

Level 2: 25.6% of Canadians

At this level, respondents can deal only with material that is simple, and clearly laid out. A level 2 score denotes a weak level of skill, but more hidden than level 1. It identifies people who can read, but test poorly. They may have developed coping skills to manage everyday literacy demands, but their low level of proficiency makes it difficult for them to face novel demands, such as learning new job skills.

Level 3: 35.1% of Canadians

At this level, respondents demonstrate a suitable minimum for coping with the demands of everyday life and work in a complex, advanced society. A level 3 score approximates the skill level required for successful secondary school completion and college entry. As with the higher levels, it requires the ability to integrate several sources of information and solve more complex problems.

Levels 4 and 5: 22.7% of Canadians

At these levels, respondents demonstrate command of higher order information-processing skills.

*Organisation for Economic Co-operation and Development and Statistics Canada, Literacy in the Information Age: Final Report of the International Adult Literacy Survey (Paris and Ottawa: OECD and Statistics Canada, 2000), pp. xi, 136.

International studies were conducted in 1994, 1998 and 2003 comparing literacy levels in all these domains. In the 2003 survey, which consisted of adult Canadians, Americans, Swiss, Norwegians, Italians, Mexicans and Bermudans, Canadians were in the middle of the international group, with the Norwegians and Swiss generally scoring higher, and the Americans, Italians, Mexicans and Bermudans scoring below Canadians.

Over the decade 1994–2003, the series of studies found only insignificant changes in literacy rates in Canada. Canadians at the lowest literacy levels, for example, improved their document skills somewhat over the various surveys; those at the highest skill levels saw their scores drop somewhat. **Overall changes in Canadian scores were not considered to be statistically significant.**¹¹⁷

EUROPE'S LIFELONG LEARNING INDICATORS¹¹⁸

Skills competencies and attitudes

- **Literacy:** percentage of students per country at proficiency level 1 or below on the PISA (Program for International Student Assessment) reading scale
- **Numeracy:** percentage of students per country below the score of 380 points on the PISA mathematical literacy scale
- **New skills for the learning society:** percentage of students per country below the score of 400 points on the PISA scientific literacy scale
- **Learning to learn skills:** percentage of students per country in the lower 25% of overall performance on the PISA "elaboration strategies" index
- **Active citizenship, cultural and social skills:** qualitative indicator on civic knowledge, civic engagement and civic attitudes across countries from IEA (International Association for the Evaluation of Educational Achievement) study

- International literacy surveys found that skills erode over time.

Literacy skills are strongly related to age: the older the cohort, the lower the skill level. One interesting finding of international surveys on adult literacy undermines any assumption that people, once they have become literate through schooling in early life, maintain their skills throughout the balance of their lives.

¹¹⁷ Statistics Canada and OECD (2005). Learning a Living: First Results of the Adult Literacy and Life Skills Survey. Ottawa–Paris. pp. 39–40.

¹¹⁸ European Commission, Directorate General for Education and Culture (2002). European Report on Quality Indicators of Lifelong Learning. Fifteen Quality Indicators. Report based on the work of the Working Group on Quality Indicators. Brussels.

HOW CANADA'S PSE MEASURES UP

Both the IALS and the ALL surveys—which sampled international populations over most of a decade—reveal that “skill loss represents a serious problem for individuals, social institutions and governments because it erodes the economic and social return on educational investments and hampers productivity and economic growth.”¹¹⁹

- Two in four employed Canadians—almost 9 million working-age adults—have low literacy skills.

The Canadian Advisory Committee on Literacy and Essential Skills concluded that “The number of working-age Canadians with low skills has increased from 8 to 9 million due to population growth.”¹²⁰

The report noted that more than 2.6 million Canadians at literacy levels 1 or 2—the lowest levels—were either unemployed or employed but earning low incomes. In addition, there are a further 2.2 million adult Canadians not in the labour force who face even more serious challenges, as they cannot access workplace literacy

programs. The report concluded that this means “community-based literacy programs and public institutions must be effective in reaching these people.”¹²¹

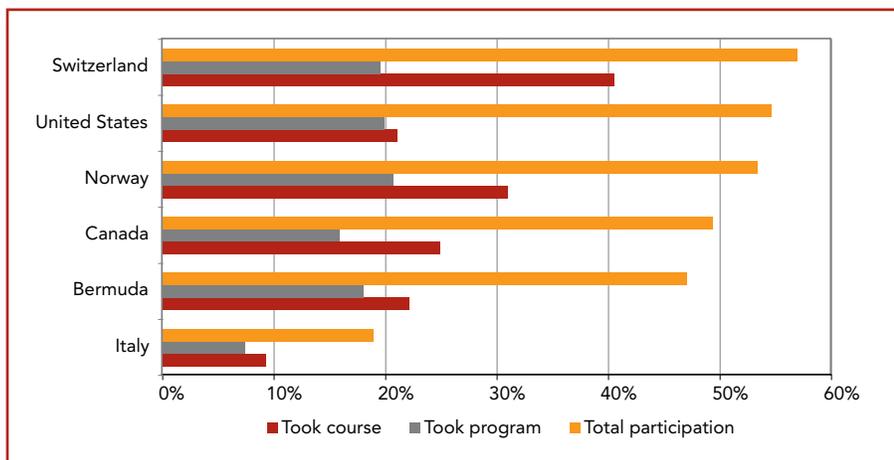
The Advisory Committee found that immigrants who come to Canada with neither English nor French had lower average scores than those whose mother tongue was one of the two official languages. “Of the 9 million people in Canada with low literacy skills, 2.6 million of them are immigrants. Two million of them are in the labour force although 240,000 of them are unemployed. There are 650,000 who are not in the labour force at all.”¹²²

As Myers and de Broucker point out, close to 1.5 million of 25- to 64-year-olds with less than high-school education, and 3.6 million with only a high-school diploma are employed—representing 38% of total employment in this age group. In addition, 38% of total employment of 16- to 65-year-olds who are employed—5.9 million Canadians—have low levels of literacy.¹²³

9.2.2 PARTICIPATION IN ADULT EDUCATION AND TRAINING

» 50% of adult Canadians took some kind of adult education and training in 2003, up from 35% a decade earlier.

Fig. 9.2.2.1 **Percentage of population aged 16–65 receiving adult education and training during the year preceding the interview, by type of participation, 2003**



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

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

ALL found that half the Canadian population aged 16–65 received adult education and training during the year preceding the ALL survey. The total percentage for Canada was slightly lower than in Switzerland, the U.S. and Norway, slightly more than the percentage in Bermuda, and more than double the percentage in Italy. ALL also noted 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.

119 Statistics Canada and OECD (2005). Learning a Living: First Results of the Adult Literacy and Life Skills Survey. Ottawa–Paris.

120 Report submitted by The Advisory Committee on Literacy and Essential Skills to the Minister of State for Human Resources Development (2005). Towards a Fully Literate Canada Achieving National Goals through a Comprehensive Pan-Canadian Literacy Strategy. Ottawa. p. 3.

121 Ibid. p.15.

122 Ibid.

123 Myers, K. & De Broucker, P. (2006). Too Many Left Behind: Canada’s Adult Education and Training System, Canadian Policy Research Networks. Research Report W34.

LIFELONG LEARNING

- Those with high levels of educational attainment participate more in adult education and training than those with lower levels of educational attainment and literacy.

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.

9.2.3 ADULT LEARNERS IN JOB-RELATED TRAINING

» In 2002, one in three Canadian workers participated 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 employment. PCEIP reported that, in 2002, 4.8 million adult workers participated in formal, job-related training in Canada. This means that approximately one in three Canadian workers aged 25–64 was involved.

The Adult Education and Training Survey¹²⁵ showed an increase in participation in job-related training, from 28.5% in 1998 to 34.7% in 2002. Similar patterns of increase are revealed when the data are examined by gender, education level, age cohort and province.

As with adult learning, generally, a substantial gap remained for participation in job-related training between those who had completed a university degree (51.7% participation) and those who had not completed high school (17.9%). Older workers, or those with lower education levels, participate less than those who are younger or have university degrees.¹²⁶

There have been some changes in this pattern over time. Those with lower skill levels—most of whom having lower educational attainment—have 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 benefitted significantly from adult education.¹²⁴

Table 9.2.3.1 **Participation rate in formal job-related training for the adult work force,* 1997 and 2002**

	1997 (%)	2002 (%)
Total	28.5	34.7
Gender		
Males	26.7	32.5
Females	30.5	37.2
Age		
25 to 34 years	32.6	41.5
35 to 44 years	29.5	34.6
45 to 54 years	27.8	33.8
55 to 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
Province		
Newfoundland and Labrador	22.9	29.5
Prince Edward Island	23.2	30.8
Nova Scotia	35	38.1
New Brunswick	25.1	34.7
Quebec	20.2	31.7
Ontario	31.1	34.8
Manitoba	29.3	38.8
Saskatchewan	31.5	37.7
Alberta	32.1	34.7
British Columbia	32	38.8
Courses	22.4	29.4
Programs	7.9	8.5

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

124 Myers, K. & De Broucker, P. (2006). Too Many Left Behind: Canada's Adult Education and Training System, Canadian Policy Research Networks. Research Report W34.
125 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.
126 Ibid.

HOW CANADA'S PSE MEASURES UP

9.2.4 EMPLOYER SUPPORT FOR TRAINING

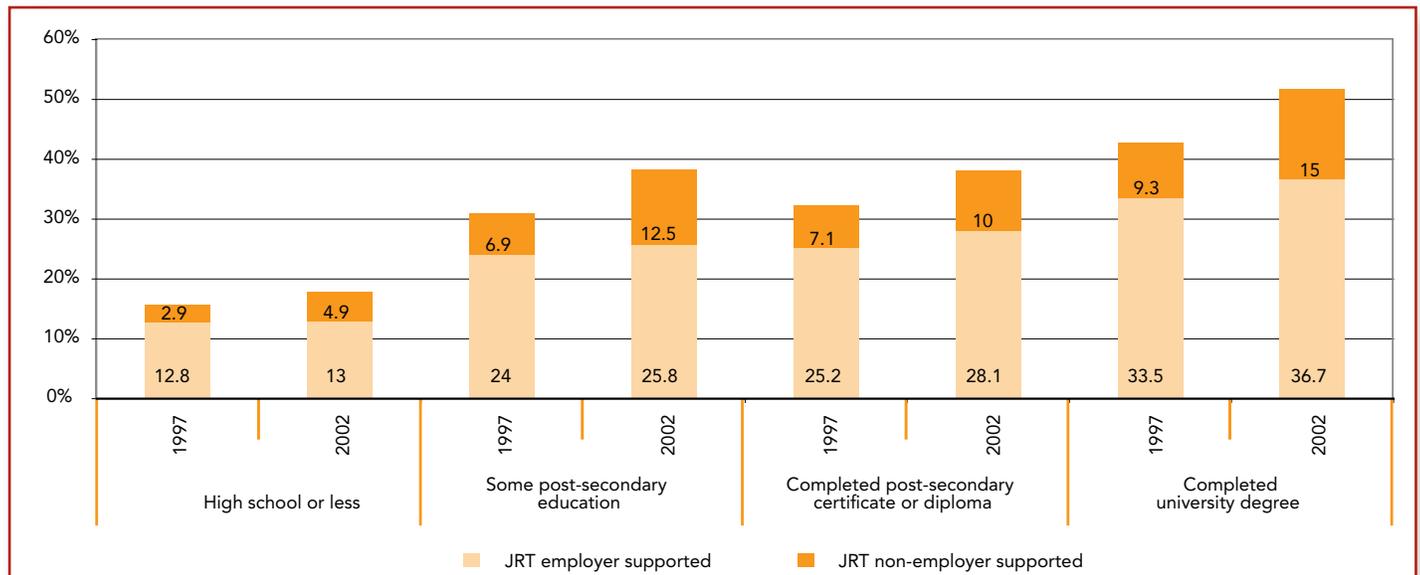
- » Three-quarters of job-related training is employer-supported.
- » Males, people in white-collar jobs and those already with PSE are most likely to receive such support.

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 25.0% 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%).¹²⁷

CCL's *Lessons in Learning*¹²⁸ presents data on the distribution of employer-supported training in Canada:

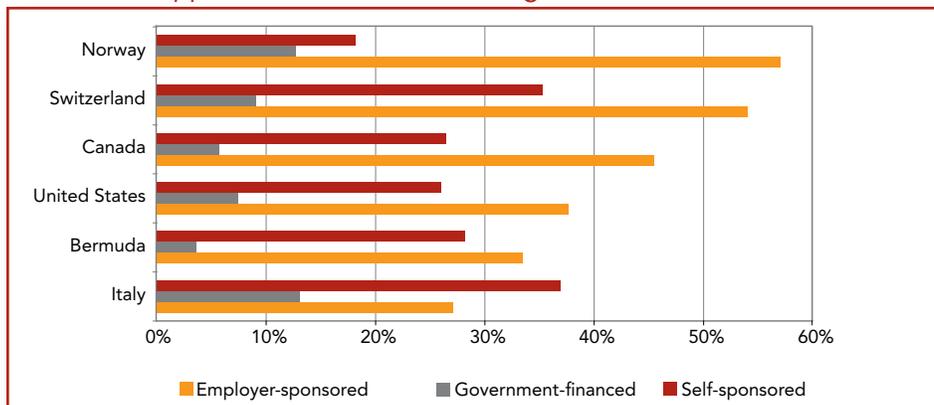
Fig. 9.2.4.1 Participation in job-related training by level of education and employer support, 1997 and 2002



Source: Canadian Council on Learning, *Lessons in Learning*, February 17, 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.

Fig. 9.2.4.2 Sources of financial support for adult education and training

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 percent of men who received support from their employer
 Source: Statistics Canada and OECD, *Adult Literacy and Life Skills Survey*, 2003.

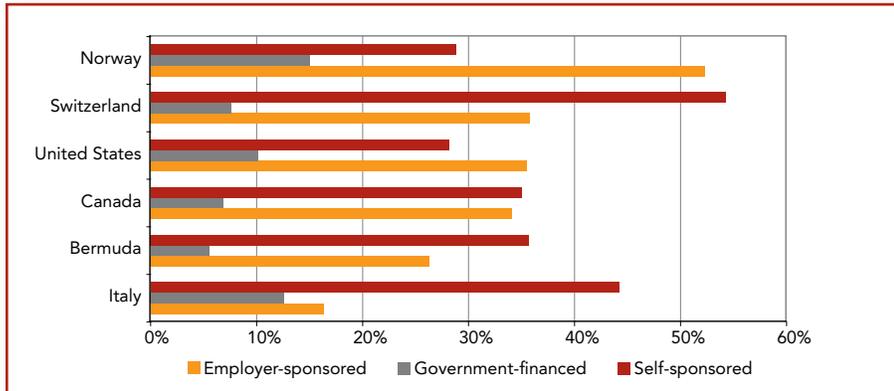
The international comparison in the ALL report provides data by gender.¹²⁹ In all jurisdictions surveyed, men were more likely than women to receive employer support for training, while women were more likely than men to self-finance their adult education and training.

In Canada, employer support for male employees is higher, as a percentage, than in the United States. However, a larger proportion of female employees receive support from their employers in the U.S. than in Canada.

127 Ibid.
 128 Canadian Council on Learning, *Lessons in Learning* dated February 17, 2006. <http://www.ccl-cca.ca/CCL/Reports/LessonsInLearning/LiL-17Feb2006.htm> accessed on July 3, 2006.
 129 Statistics Canada and OECD (2005). *Learning a Living: First Results of the Adult Literacy and Life Skills Survey*. Ottawa–Paris. Table 4.9. Table 4.11 also provides 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.

LIFELONG LEARNING

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 percent of women who received support from their employer
Source: Statistics Canada and OECD, *Adult Literacy and Life Skills Survey*, 2003.

- Employer support for adult education and training is lower in Canada than in other OECD countries—both in terms of expenditures per employee and share of payroll.

Another dimension of assessing the quantity of training is highlighted in the Council of the Federation’s February 2006 Discussion Guide.¹³⁰ It cites internationally comparable data from the American Society for Training and 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.”¹³¹

The Council also included findings from the Conference Board of Canada, showing that “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).”¹³²

The CCL 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.”¹³³

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

9.2.5 UNMET NEEDS

» 1.5 million Canadians report unmet job-related adult education and training needs.

PCEIP 2003 reports that, in 1997, 1.5 million people (or 7% of Canadians aged 17 and over, excluding full-time students) reported they did not take some

needed job-related training.¹³⁴ The most frequently cited reasons were being too busy at work and expense.

Fig. 9.2.5.1 Reasons for having unmet training needs/wants, for participants and non-participants, Canada, 2002

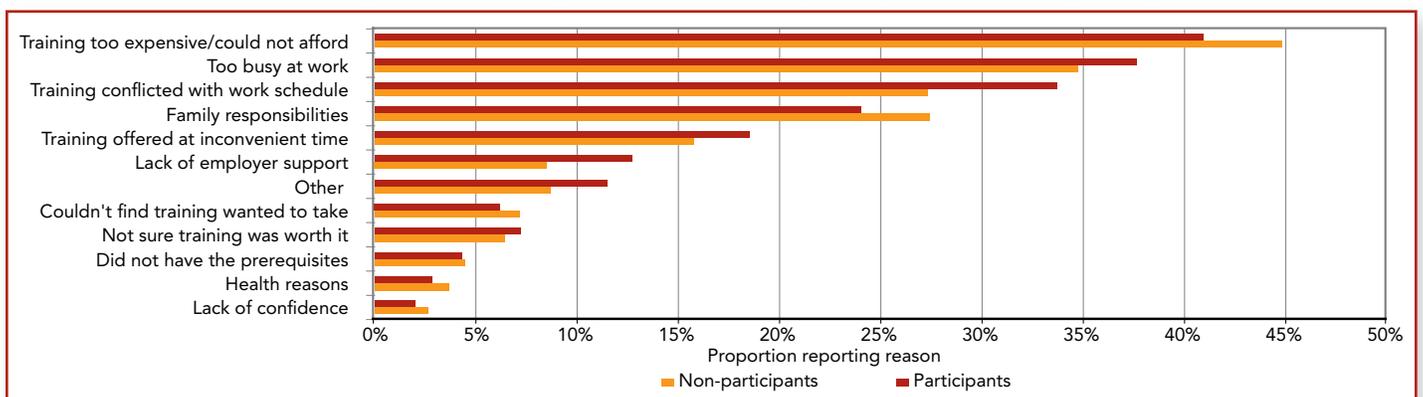


Figure source: Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program. Council of Ministers of Education, Canada and Statistics Canada: Canadian Education Statistics Council, 2006, Catalogue no. 81-582-XIE. Ottawa.

130 Council of the Federation (2006). Discussion Guide: The Future of Post-secondary Education and Skills Training in Canada. Prepared for Competing for Tomorrow: A Post-secondary Education and Skills Summit. Ottawa.

131 Ibid, p.8.

132 Ibid, p.8.

133 Canadian Council on Learning Website: <http://www.ccl-cca.ca>

134 Sussman, D. (2002). Barriers to job-related training. Perspectives on Labour and Income, Vol.3, no.3. Statistics Canada, Catalogue no. 75-001-XIE. Ottawa.

HOW CANADA'S PSE MEASURES UP

- A relatively small proportion of adult education and training takes place at PSE institutions.

In Canada, a recent CPRN study¹³⁵ showed relatively low rates of participation in post-secondary education among adults.

The same study highlights the important role of the public post-secondary system in providing adult education to those who pursue it.¹³⁶

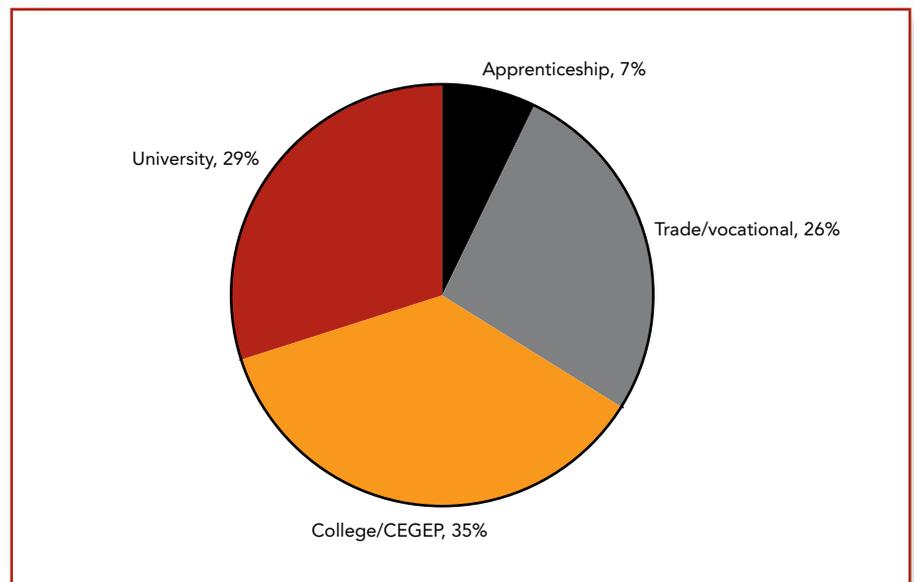
The findings of the public poll done by CCL in April 2006 revealed a degree of dissatisfaction with the flexibility of post-secondary institutions in meeting the needs of lifelong learners. Respondents who had experience as part-time post-secondary students had the most negative perceptions of the institutions' flexibility.

Table 9.2.5.1 **Participation in post-secondary education by province (25- to 54-year-olds, 2002)**

	AB	BC	NS	ON	QC	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	5.0	8.3	6.3	7.4

Source: Myers, K. and De Broucker, P. *Too Many Left Behind*. Canadian Policy Research Network, Ottawa. 2006. Authors' calculations.

Fig. 9.2.5.2 **Participation in post-secondary in 2002 by type of institution (25- to 54-year-olds)**



Source: Myers, K. and De Broucker, P. *Too Many Left Behind*. Canadian Policy Research Networks, Ottawa. 2006. Authors' calculations.

Table 9.2.5.2 **Comparing colleges and universities in meeting lifelong learning's need for flexibility**

	UNIVERSITIES ARE FLEXIBLE IN MEETING NEEDS OF OLDER, WORKING STUDENTS (%)	COLLEGES ARE FLEXIBLE IN MEETING NEEDS OF OLDER, WORKING STUDENTS (%)
Strongly Agree	9	9
Somewhat Agree	58	60
Neutral	12	12
Somewhat Disagree	19	17
Strongly Disagree	3	3

Source: Pacific Issues Partners. *Canadian Attitudes on Post-secondary Education: A Report for the Canadian Council on Learning*. Ottawa: Canadian Council on Learning, 2006.

135 Myers, K. & De Broucker, P. (2006). *Too Many Left Behind: Canada's Adult Education and Training System*, Canadian Policy Research Networks. Research Report W34.
136 Ibid.

9.3 Conclusions

9.3.1 THE EXTENT TO WHICH OBJECTIVES ARE BEING MET

The concepts of *lifelong* and *life-wide* learning are now recognized as the new imperative in today's complex world of advancing technologies. Working Canadians will have a recurring need for education and training opportunities throughout their adult lives. Post-secondary institutions will increasingly be expected to help address the learning needs of working-age adults, which will require stronger links between academia and the workplace.

1. Only 40–60% of Canadians aged 16–65 possess literacy, numeracy and problem-solving skills at or above minimum levels to function adequately.
2. 1.5 million Canadians have unmet needs for job-related adult education and training.
3. Canadian employers need highly skilled and adaptable workers to keep their businesses productive and competitive. However, business support for adult education and training is weaker in Canada than in other OECD countries—both in terms of expenditures per employee on training and also in share of payroll.
4. Workplace-based training is much more readily available at larger firms, which have economies of scale not available to small and medium-sized enterprises (SMEs) that now make up most of the Canadian economy.
5. There is a significant lack of coordination in adult learning programs in Canada. The absence of a national forum for adult learning is a major barrier to developing adult learning initiatives that are coherent, consistent, effective and available across Canada. The OECD pointed out the need for pan-Canadian coordination and coherency of policy and practice in this field. CCL's knowledge centres that focus on adult learning and on work and learning are, in part, aimed at addressing some of these gaps.

9.3.2 WHAT WE NEED TO KNOW NEXT ABOUT LIFELONG LEARNING

1. More relevant and consistently collected time-series information on adult learning and outcomes in Canada is essential.
2. A better understanding is required of the models of learning that work best for different groups of adult learners.
3. Work with employers, employees and unions to understand which incentives might increase workplace education and training.

9.3.3 A POSITIVE RECORD — AN UNCERTAIN FUTURE

A positive record

Lifelong learning is essential in today's fast-changing, knowledge-based economy to address the skill loss that occurs as people age. Like citizens of other OECD countries, over the last 10 years, Canadians have become increasingly aware of the requirement for lifelong and life-wide learning, a fact reflected in increased participation in adult education programs. In 2003, 50% of adult Canadians took some kind of adult education and training, up from 35% a decade earlier.

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

An Uncertain Future

Lifelong learning appears to be one of the chief weaknesses related to post-secondary education in Canada.

1. There is a mismatch between skill and learning needs of millions of Canadians and the current availability of adult education and training opportunities.
2. The OECD has found that federal/provincial incoherence and lack of co-operation hampers adult education information and opportunities in Canada.
3. Evidence regarding 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 also be made more readily available to those in greatest need, given that individuals with higher levels of education currently receive most adult education.
4. 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.

10.1 Introduction

Affordability for individual learners is essential so that finances do not become a barrier to accessing PSE. Affordability issues are not limited to learners: the ability to sustain PSE and provide predictable, stable funding to support current operations and allow for future planning is also a concern of governments across the country.

Over the last 20 years, government policies and programs in Canada have focussed on different aspects of PSE affordability. In the late 1990s, debt reduction received much attention because of increasingly high levels of debt upon graduation. More recently, attention has shifted to the impact of increased tuition rates on PSE access. This debate has been sparked by rising rates in some provinces, while others have frozen tuition or introduced graduated increases. There has been considerable recent research on the participation of low-income groups to determine how PSE costs impact decisions to attend school.

Other jurisdictions have also explored options to ensure their student financial assistance supports PSE students efficiently and effectively. Related issues often include level of student debt, repayment terms, interest rates for loans and whether loans should be income-contingent upon graduation. The Educational Policy Institute published *An International Comparison of Student Loan Burdens and Repayment Conditions* that provides an overview of student financial assistance programs across eight countries.

In Canada, discussion about PSE affordability is usually coupled with dialogue on the sustainability of funding from provincial, territorial and/or federal governments. The strategic plans of many advanced education ministries across the country focus on sustaining and building quality advanced education so that individual and societal demand might be met in the challenging environment of competing fiscal and policy priorities.

10.2 What we know now

Indicators of affordability and sustainability become entangled with values that differ by individual and by stakeholder group. As well, with significantly different tuition fee policies across the country, it is difficult to summarize the situation for Canada as a whole.

The Educational Policy Institute has established “Global Higher Educational Rankings” to assess the affordability and accessibility of higher education across a number of countries. The rankings for affordability derive from a weighted assessment of six measures, including education and other costs as a percentage of ability to pay. In this study, Canada ranks 11th among 16 jurisdictions, ahead of Australia, the U.S. and the U.K. Canada’s ranking appears to be influenced significantly by comparatively higher national incomes, which are used to determine ability to pay.

The following indicators were selected to track affordability and sustainability in Canada:

- Public perception of affordability
- Cost of PSE to individuals
- Student debt and sources of income
- Public and private expenditures on PSE

Good pan-Canadian information is available in this area. The National Graduate Survey, conducted since 1984 by Statistics Canada, follows graduates two and five years after graduation. The surveys provide a wealth of information on employment-related characteristics of graduates as well as statistics on student debt. Student debt at graduation is a measure carefully tracked as a proxy of affordability, although there is no agreed-upon benchmark to determine acceptable levels of debt.

Tuition fees, one of the main components of student costs, are another indication of PSE affordability. The Millennium Scholarship Foundation has conducted several studies based on special surveys regarding financial pressures faced by students. However, there are difficulties in aggregating these statistics into an assessment of affordability.

The identification of indicators related to the issue of *sustainability* of a quality post-secondary education system is not a straightforward task either. Figures on the share of program budgets devoted to PSE are examined to shed light on the issue. This indicator is not ideal but is generally used.

Information on public perceptions of affordability of PSE reflects Canadians’ concerns about the issue. There are several surveys on this issue.

10.2.1 PUBLIC PERCEPTIONS OF AFFORDABILITY

» Canadians believe that affordability and finances are barriers to access.

Studies show that students are concerned that the cost of PSE may affect their participation. The 2000 Statistics Canada *Youth in Transition Study* found that over 70% of high-school graduates aged 18–20 cited financial obstacles as a barrier to PSE participation and 46% identified costs as a barrier to going as far as they would like in school. The most commonly cited barrier for PSE leavers was financial reasons (71.4%).¹³⁷

Recent studies also show a tendency for people, especially those from lower income groups, to overestimate the costs of PSE while underestimating the return on investment of PSE in terms of economic and social benefits.¹³⁸

The Millennium Scholarship Foundation’s report, *Price of Knowledge*,¹³⁹ on Canadians’ perceptions of university costs and benefits demonstrated these misperceptions:

Table 10.2.1.1 **Canadians’ perceptions of university costs and benefits in 2003**

	AVERAGE REPORTED VALUE	MEDIAN REPORTED VALUE	“TRUE” VALUE (ACTUAL)
Cost of tuition	\$7,774	\$4,989	\$3,737
Graduates’ avg. Annual income	\$42,389	\$39,967	\$61,823

Source: Junor S. & Usher A. *Price of Knowledge. Access and Student Finance in Canada. Millennium Research Series. Millennium Scholarship Foundation. Canada. Table 3.V.1. 2004.*

137 Bowlby, J.W. & McMullen, K. (2002). *At a Crossroads: First results for the 18 to 20-year-old cohort of the Youth in Transition Survey.* Human Resources Development Canada and Statistics Canada. catalogue no.RH64-12/2002E-IN.

138 Usher, A. (2005). *A Little Knowledge is A Dangerous Thing: How Perceptions of Costs and Benefits Affect Access to Education.* Toronto, ON: Educational Policy Institute.

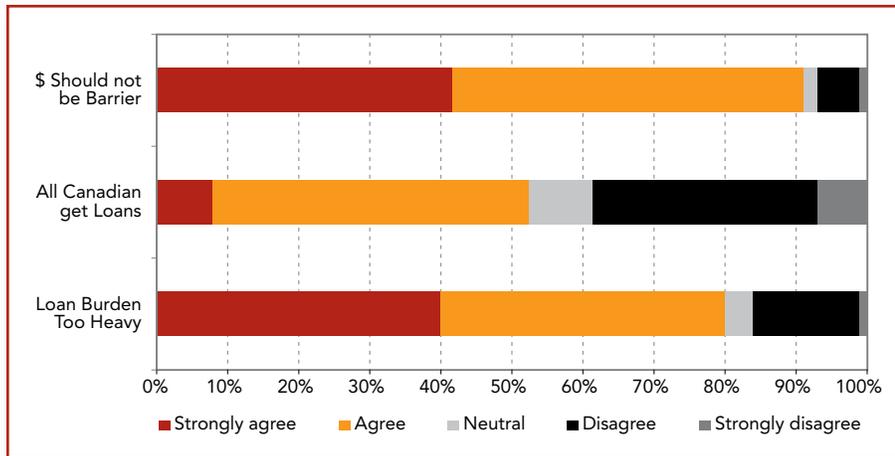
139 Junor S. & Usher A. (2004). *Price of Knowledge. Access and Student Finance in Canada. Millennium Research Series. Millennium Scholarship Foundation. Canada.*

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The spring 2006 poll conducted by CCL on Canadians' attitudes toward PSE revealed interesting results regarding values and perceptions of finances as a barrier. An overwhelming majority (92%) agreed with the statement, "We should not allow the price of a

college or university education to keep students who are qualified and motivated from doing so." Just under 80% of respondents agreed that, "Students have to borrow too much money to pay for their college or university education," indicating that public opinion perceives student debt loads as too high.

Fig. 10.2.1.1 **Financial barriers and burdens for students**



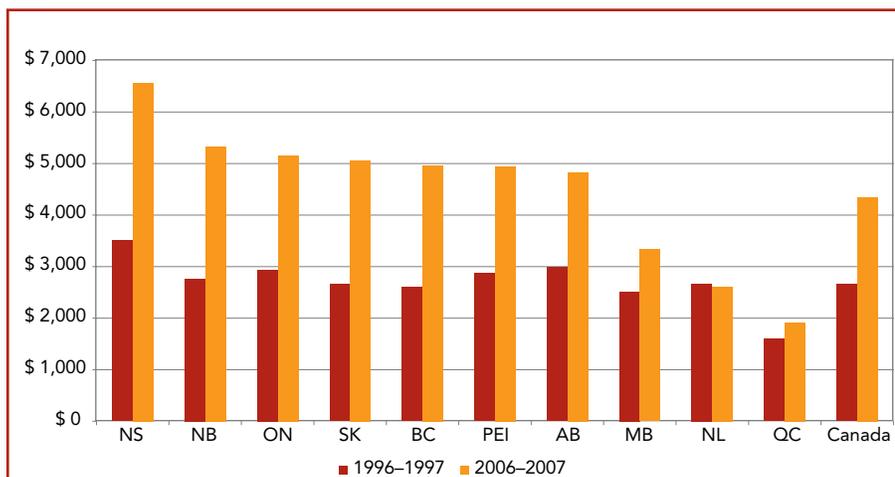
Source: Pacific Issues Partners. *Canadian Attitudes on Post-secondary Education: A Report for the Canadian Council on Learning*. Ottawa: Canadian Council on Learning, 2006.

The polling results illustrate that Canadians consider access for qualified students to be an important issue and financial constraints should not keep students from pursuing post-secondary studies. There is a division in opinion as to whether students can access loans or financial aid to pay for their education. However, 80% agree that student debt is too onerous, which implies that, while PSE may be accessible through loans, the burden of those loans is heavy.

10.2.2 COST OF PSE TO INDIVIDUALS

» Tuition and other PSE costs have increased significantly over the last decade.

Fig. 10.2.2.1 **Average undergraduate university tuition fees, Canada and provinces, 1996–1997 and 2006–2007**



Note: Provinces ranked by 2006-2007 tuition.
 Source: Figures for 1996-1997 were adapted from PCEIP (1999) Table 3.27 with CCL calculations for the current dollar value.
 Figures for 2006-2007: Statistics Canada Daily, Sept. 1, 2006.

Tuition is by no means the only factor that must be taken into account when calculating the total cost of post-secondary education—but it is significant. The following chart, which notes significant increases in most jurisdictions, shows the costs of university tuition by province over the last decade.

AFFORDABLE AND SUSTAINABLE PSE AND TRAINING

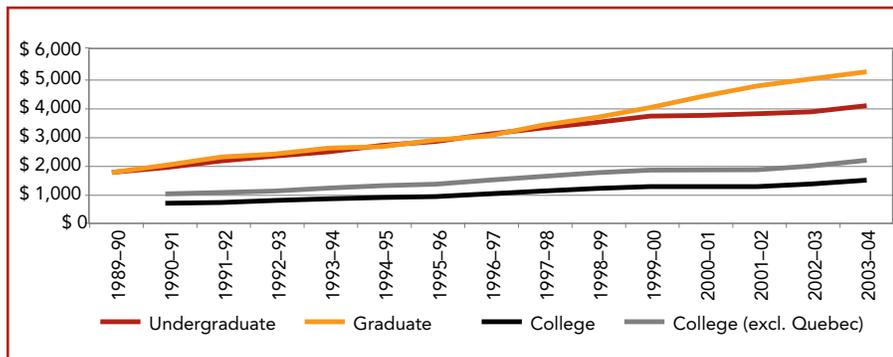
WORKING TO LEARN: MEETING UNIVERSITY AND COLLEGE COSTS

There are signs that the period of skyrocketing tuition fees has ended and that students can begin to expect more modest tuition fee increases. While the average yearly university tuition increase between 1990–1991 and 2000–2001 was 13.5%, this dropped to 2.2% between 2000–2001 and 2005–2006. As well, a number of provinces currently have tuition freezes and others have placed limits on tuition fee increases. Nonetheless, today's students face much higher tuition costs than did their predecessors 15 years ago.

Canadian Council on Learning. Lessons in Learning, June, 2006.
<http://www.ccl-cca.ca/CCL/Reports/LessonsInLearning/Student-employment.htm> accessed in July, 2006.

Available data for colleges show the rate of increase in tuition has been much lower than in universities. Over the last 15 years, college tuition has about doubled, while university tuition has almost tripled.

Fig. 10.2.2.2 **Canadian tuition rates from 1989 to 2004 (in Real Dollars)**



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

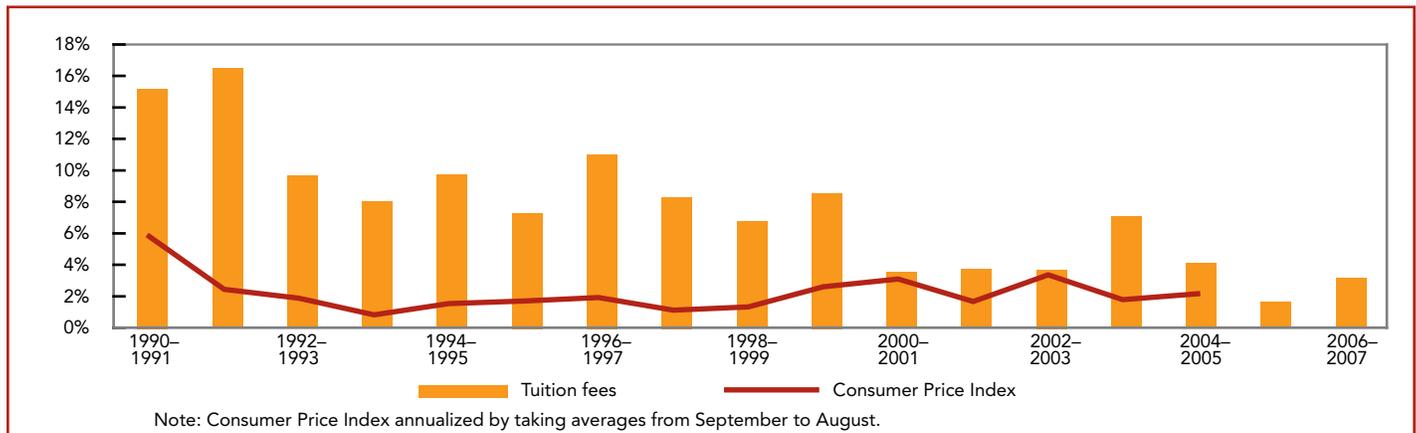
In the last few years, tuition fee increases have slowed somewhat. For example, tuition fees for university undergraduate programs have increased at an annual average rate of 7.0% since 1990–1991 (15.2% for 1990–1991, and 16.5% for 1991–1992). Since 2000, the increase has slowed to an annual average of 3.9%, reflecting government decisions to regulate fees.

Table 10.2.2.1 **Median education costs by institution type**

	CEGEP	COLLEGE	UNIVERSITY	ALL INSTITUTION TYPES
Median Educational Cost	\$751	\$3,200	\$5,210	\$4,080

Source: Statistics Canada, Post-secondary Education Participation Survey, 2002.

Fig. 10.2.2.3 **Rates of increase in undergraduate tuition fees versus inflation, Canada, 1990–1991 to 2006–2007**



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

GERMANY: ACCESS TO HIGHER EDUCATION

In Germany, equal access to higher education institutions is guaranteed by law. Direct student financing is governed by the Federal Training Assistance Act, and is dependent on parental income. The BAföG (study grant) awarded is half grant, half loan. Following BAföG reform in 2001, the number of students receiving BAföG rose to 25.6%.¹⁴⁰

HOW CANADA'S PSE MEASURES UP

In addition to a rise in general tuition, there have been significant increases in tuition for many professional programs. This is particularly evident in dentistry, medicine and law.

Table 10.2.2.2 **Average university tuition fees by faculty, Canada, 1994–1995, 2005–2006 and 2006–2007**

	1994–1995	2005–2006	2006–2007
	(CURRENT \$)		
Agriculture	3,255	3,643	3,712
Architecture	3,111	3,610	3,805
Arts	2,630	3,982	4,104
Commerce	2,424	3,806	3,989
Dentistry	2,666	13,033	13,463
Education	2,577	3,277	3,334
Engineering	2,456	4,740	4,887
Household sciences	2,531	3,914	4,037
Law	2,447	6,904	7,221
Medicine	2,546	10,318	10,553
Music	2,641	3,936	4,092
Science	2,327	4,219	4,353
Undergraduate	2,535	4,211	4,347
Graduate	2,490	6,134	6,479

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

Table Source: Statistics Canada Daily, Sept. 1, 2006. *Tuition and Living Accommodation Costs for Full-time Students at Canadian Degree-granting Institutions (TLAC)*.

An EKOS Study¹⁴¹ looked at other costs for students. The study revealed that students' average monthly living expenses, including education costs, are about \$1,200. The breakdown of expenditures is:

- 24% for education
- 15% for accommodation
- 12% for transportation
- 11% for food
- 8% for debt payments
- 30% other

No data are available for changes over time, but increases in the cost of living are obvious. For students studying in areas with hot real estate markets, there have been additional pressures in the last five years.

THE U.K. HIGHER EDUCATION ACT

The Higher Education Act 2004 in the U.K. introduced variable deferred fees in England for full-time undergraduate students commencing their courses from 2006–2007. Higher education institutions can vary their fees between £0 and £3,000 per year for each course. Up-front payment of tuition fees for full-time undergraduate students from 2006–2007 will be abolished. Instead, students will be able to take out a loan for fees, repayable only when they are earning more than £15,000, and then in line with income and at no real rate of interest. The Welsh Assembly Government has also committed to introduce fee deferral arrangements from 2006–2007 for Welsh domiciled students on the same basis as in England. Northern Ireland Ministers are currently consulting on legislation to introduce a similar arrangement as that being put in place for England.¹⁴²

¹⁴¹ EKOS Research Associates (2003). *Making Ends Meet. The 2001-2002 Student Financial Survey*. Millennium Research Series: Does Money Matter? No.5. Canada Millennium Scholarship Foundation. Canada. p.116.

¹⁴² The Bologna Process U.K. National Report (2005) <http://www.bologna-bergen2005.no/> Accessed in July 2006.

AFFORDABLE AND SUSTAINABLE PSE AND TRAINING

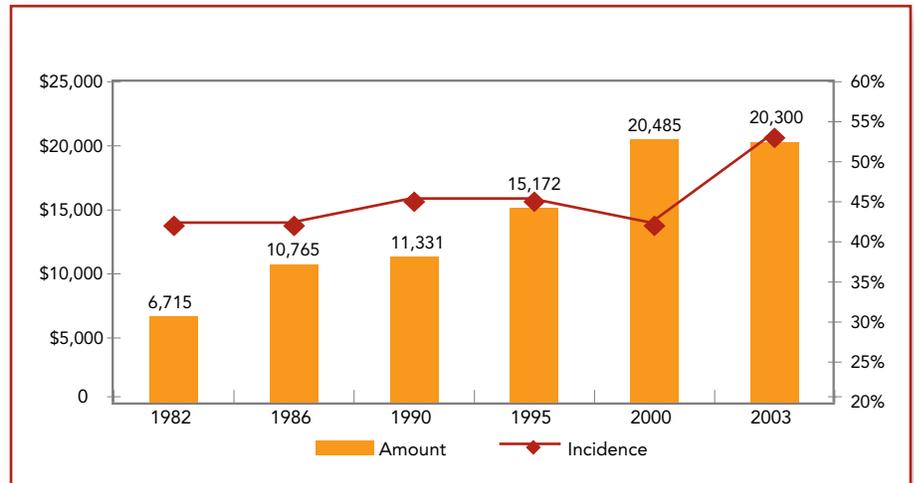
10.2.3 STUDENT DEBT AND SOURCES OF INCOME

» Average student debt has doubled since 1986, and the percentage of students who access loans has increased.

Approximately half those students who graduate from post-secondary do so with student debt. There is evidence that debt levels have been growing over the last 10 years, although debt levelled out between 2000 and 2003. While such debt can be viewed as an investment, given the higher employment and income levels expected to flow from PSE attainment, there is concern in many quarters that debt levels are becoming too high. Governments have tackled this issue through an elaborate system of loans, forgivable loans, bursaries and scholarships in an attempt to keep student debt at a manageable level—for which there is no defined measure. There is also concern that some students may be discouraged from even attending PSIs at all because of their reluctance to take on such debt.

Charts 10.2.3.1 and 10.2.3.2 demonstrate the percentage of graduates who borrow, by level of education as well as average debt at graduation.

Fig. 10.2.3.1 **Incidence and amount of student debt of bachelor's degree graduates from 1982 to 2003 (in 2003 Real Dollars)**

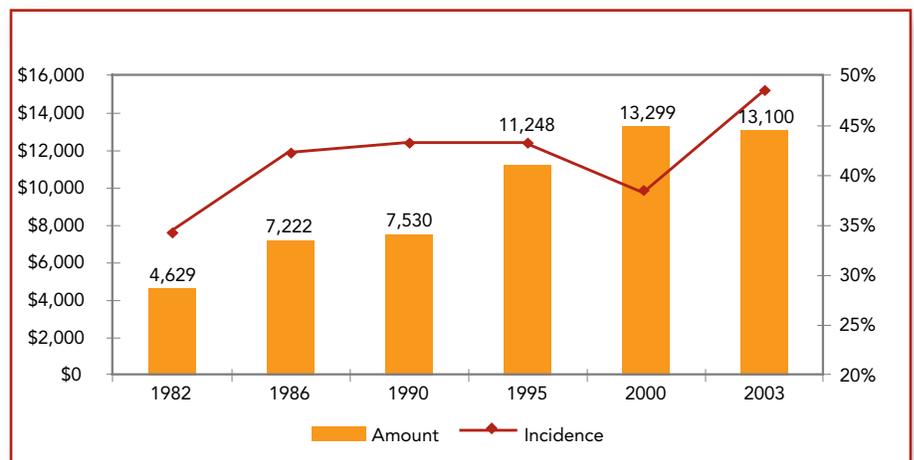


Source: Millennium Scholarship Foundation based on Statistics Canada's 1982, 1986, 1990 and 1995 National Graduate Surveys (from Finnie, Student Loans), Statistics Canada's 2000 National Graduate Survey (custom tabulations) and Lang Research's 2004 Meta-Analysis of Post-secondary Institutional Graduate Surveys.

The figures illustrate several trends:

- Over half of all university students access the government student loan program; slightly less than half of college students do so.
- There has been a sharp increase in *incidence* of student debt since 2000 for college and university students as a greater percentage of students are accessing loans.
- Between 2000 and 2003, average student debt decreased slightly, with average university debt about 50% higher than average college debt.

Fig. 10.2.3.2 **Incidence and amount of student debt of college graduates from 1982 to 2003 (in 2003 Real Dollars)**



Source: Millennium Scholarship Foundation based on Statistics Canada's 1982, 1986, 1990 and 1995 National Graduate Surveys (from Finnie, Student Loans), Statistics Canada's 2000 National Graduate Survey (custom tabulations) and Lang Research's 2004 Meta-Analysis of Post-secondary Institutional Graduate Surveys.

HOW CANADA'S PSE MEASURES UP

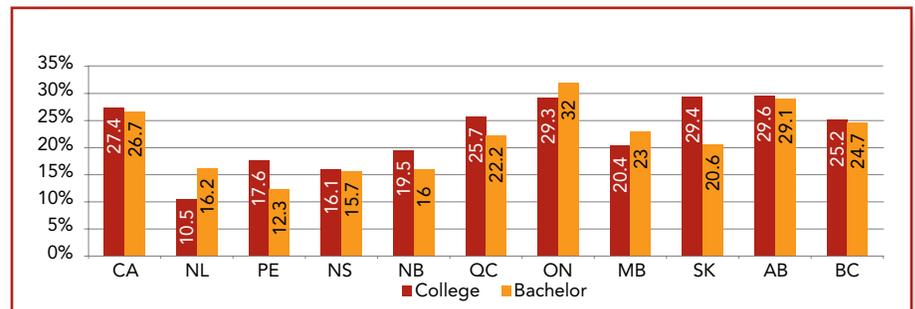
There has also been a trend toward the use of other-than-student loan debt as some students turn to private debt—borrowing from family, taking personal loans from banks, or using credit cards. Three out of four students incur some type of debt, with private debt averaging just over \$8,000.¹⁴³

With regard to sources of income to pay for PSE, the study found that no single source of income is sufficient to cover the total costs:¹⁴⁴

- employment (40%);
- family gifts (17%);
- government loans (15%);
- private/family loans (9%);
- bursaries (5%);
- other (14%).

Student debt repayment figures are available, but limited, because they are collected for only short periods of time. To give an indication of trends, figures on debt repayment after two years of graduation (for the class of 2000) are included. These average figures—which show that 27–33% of all debt is repaid within two years—likely mask the circumstances of some individuals.

Fig. 10.2.3.3 Average percentage of government student loan debt repaid within two years of graduation, Class of 2000, by level and province of study



Source: Junor S. & Usher A. Price of Knowledge. Access and Student Finance in Canada. Millennium Research Series. Millennium Scholarship Foundation. Canada. Figure 6.V.4.2004.

Statistics from the Allan and Vaillancourt study¹⁴⁵ show that 34% of college graduates and 28% of graduates from a bachelor's program report difficulties in student loan repayment.

Fig. 10.2.3.4 Percentage of graduates reporting difficulties in repayment, by type of degree, 1990, 1995 and 2000

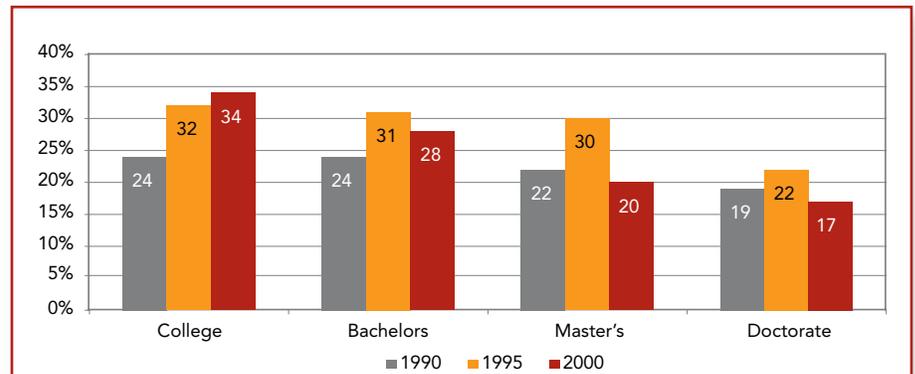


Figure Source: Junor S. & Usher A. Price of Knowledge. Access and Student Finance in Canada. Millennium Research Series. Millennium Scholarship Foundation. Canada. Figure 6.V.6. 2004.

WORKING TO LEARN: MEETING UNIVERSITY AND COLLEGE COSTS

The proportion of post-secondary students who work during their studies has increased considerably since the late 1970s. In 1979, fewer than 30% of university students and fewer than 40% of college students worked either part- or full-time. By 2001, over 40% of university and over 50% of college students were working. Within those steadily increasing trends, there is substantial year-to-year variability, depending in large part on labour-market conditions. In 1976–1977, about the same proportion of young men and young women held jobs during the school year. By 2004–2005, about half of female full-time students between the ages of 18 and 24 were working at a job during the school year, compared to 41% of males.

During the summer of 1989, 61.4% of students planning to resume their studies in the fall were employed, while only 51.7% were employed during the summer of 2005. Female full-time students are now much more likely than their male counterparts to be employed during the summer months. Compared to the summer of 1998, employment rates for female students increased 7.1 percentage points, reaching 55.2% in the summer of 2005; this compares to a 2.2 percentage-point increase for male students over the same period, with the employment rate rising to 47.9% in 2005.

Canadian Council on Learning. Lessons in Learning, June, 2006.
<http://www.ccl-cca.ca/CCL/Reports/LessonsInLearning/Student-employment.htm> accessed in July, 2006.

143 EKOS Research Associates (2003). Making Ends Meet. The 2001–2002 Student Financial Survey. Millennium Research Series: Does Money Matter? No.5. Canada Millennium Scholarship Foundation. Canada. p.115.

144 Ibid.

145 Allen, M. & Vaillancourt, C. (2004). Class of 2000: Profile of Post-secondary Graduates and Student Debt. Statistics Canada, Education, Skills, and Learning Research papers No.16. catalogue no.81-595-MIE.

AFFORDABLE AND SUSTAINABLE PSE AND TRAINING

10.2.4 PUBLIC AND PRIVATE EXPENDITURES ON PSE

» Public expenditures on PSE have remained relatively constant over the last decade.

The share of public expenditures on education, including PSE, is discussed in detail in Chapter 7 on access. The figures on public expenditures in Canada—in constant dollars and as a share of program expenditures—can be found in that chapter. It should be noted that public expenditures on PSE have trended upward in recent years. The program share for PSE expenditures increased from 5.3% in 1990 to 6% in 2004.

- The relative share of PSE funding has shifted, with more being borne by individuals and less by governments.

To chart changes over the past several years, data on the extent to which private expenditures contribute to total expenditures at each level of education are tabled in PCEIP 2005. The private component is lowest at the elementary–secondary level and highest at the university level. Within the PSE sector, the data show the increase in and relative shift toward private expenditures is most pronounced at the university level, and less so at the college level. Of note, both private and public expenditures for trade–vocational education declined over the period.

Table 10.2.4.1 **Indices of change in private 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.

**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. Ottawa. 2006.

Table 10.2.4.2 **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

*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. Ottawa. 2006.

10.3 Conclusions

10.3.1 THE EXTENT TO WHICH OBJECTIVES ARE BEING MET

1. On a per-student basis, Canada has one of the highest levels of public investment of the OECD countries. It is significant that the program share of government expenditures devoted to PSE remained constant over the first half of the last decade, then trended upward in the last few years.
2. A growing barrier to PSE access, from an individual's perspective, is affordability.
3. The rising cost of tuition over the last decade, coupled with increases in the cost of living and other education-related expenses, have resulted in a doubling of student debt loads. Despite reforms to student financial assistance, debt levels remain an impediment to PSE access, particularly for low-income families and other under-represented groups that are debt averse.

10.3.2 WHAT WE NEED TO KNOW NEXT ABOUT AFFORDABLE AND SUSTAINABLE PSE AND TRAINING

1. The extent to which affordability is a barrier to access needs to be examined fully.
2. Concerns that PSE affordability is a barrier to access are consistent in public opinion polls and surveys. Regular polling needs to continue to determine if these perceptions and concerns persist.
3. Student debt statistics from the National Graduate Survey require continual upgrading.
4. Concern about prospective debt appears to have a particularly negative impact on the decision of low-income and other under-represented groups to attend PSE. This is an area where more analysis is required.
5. Canada's expenditures on tertiary education ranked second among OECD members in 2001, as a percentage of GDP. While these levels of investment have served Canada well historically, international trends and Canada's rankings need to be monitored closely as other countries are investing heavily in PSE.

10.3.3 A POSITIVE RECORD — AN UNCERTAIN FUTURE

A positive record

Public expenditures on PSE have remained relatively constant over the past decade. However, there is no clear answer to the question of whether Canada's PSE sector is structured to provide affordable, sustainable PSE opportunities for Canadians. The Council of the Federation's focus on funding arrangements for PSE, and measures introduced by the federal government through its 2006 budget, demonstrate awareness of the need to deal with the issue of sustainability in this sector.

An uncertain future

Student debt rates have doubled over the past 20 years and roughly one in three graduates reports difficulty in repaying student loans. Public opinion polling consistently finds financial barriers are perceived to be the greatest obstacle to post-secondary studies. This perception alone could pose a barrier to PSE.

PSE affordability is a matter of national interest. The ability of individual students to access and finance post-secondary studies and of PSE institutions to provide quality education and training to Canadians are both integral to Canada's capacity to innovate and remain competitive in an aggressive global marketplace.

THE EXPERIENCES OF OTHER COUNTRIES

11.1 Introduction

Creating learning and knowledge societies has become a preoccupation of most developed countries in the 21st century. Knowledge workers drive innovation, which is the foundation of modern economic and social development. Nurturing and attracting talent is now a prerequisite to lure investment to sustain and spur prosperity. Consequently, the role of post-secondary systems has never been greater in creating strong, sustainable economies and progressive societies.

The issue is not whether Canada is well served by its post-secondary institutions. Our institutions are perceived to be global leaders in a number of domains. *Measuring up* internationally, however, is as much about system organization and coherence as it is about inter-institutional comparison or competition.

Several countries have increased their emphasis on higher education in recent years. Many have undertaken reviews to determine how their education and training systems are performing in comparison with other jurisdictions, whether they are meeting national objectives and, in the case of the EU, common European standards. Based on these reviews, several have launched major reforms to ensure their systems are responsive to national needs and

global realities. In all jurisdictions, there is a definite push to introduce performance measurement and accountability. Such measurement is related not only to accountability for institutions—it is also an assessment of countries' PSE performance and, therefore, of their national leadership.

Federal systems differ regarding division of powers and allocation of jurisdiction and resources. In general, education, including post-secondary education, is vested primarily, but not exclusively, at the *sub-national* level. There have been a number of examples in recent years in which various levels of government have come to work together on issues related to PSE or the broader issue of human capital.

It is worth exploring whether ideas, policies and institutions tried elsewhere could improve Canada's innovativeness, productivity and human capital development stemming from PSE. This section summarizes how other jurisdictions organize themselves with respect to the planning and management of PSE. It reviews how these countries set national goals and objectives, and outlines their planning and implementation structures to monitor progress toward their national targets.

THE EXPERIENCES OF OTHER COUNTRIES

Australia

Australia's experience in the evolution of roles and responsibilities for higher education has been very different from Canada's, despite a similar constitutional arrangement. Over the past 30 years, a strong degree of centralization has developed under the Australian Commonwealth government and the federal Department of Science, Education and Training responsible for developing higher education policy at a national level. This ministry distributes funding directly to institutions. A Ministerial Council on Education, Employment, Training and Youth Affairs and a federal/state joint planning council at the officials' level ensure ongoing dialogue and planning for higher education among the various orders of government.

With the centralization of fiscal arrangements, national-level processes that tie the country's post-secondary institutions together have been developed. Australia launched an extensive review of its post-secondary system at the turn of the 21st century. The review, "Higher Education at the Crossroads," launched a massive reform ("Backing Australia's Future"), including a 10-year vision, a realignment of funding to support reform measures and an implementation schedule for the first four years of reform.

The reform covered:

- Funding initiatives
- Governance and workplace relations
- National priorities initiatives
- Student financing and scholarships initiatives
- Equity initiatives
- Teaching initiatives
- Research
- Collaboration

Quality initiatives have been a focus in Australia in recent years. Even before the announcement of system-wide reform, the Australia Universities Quality Agency (AUQA) had established a cycle of quality auditing and public reporting for all public post-secondary institutions. The AUQA is an independent, not-for-profit national agency established by the Ministerial Council on Education, Training and Youth Affairs in March 2000. Operating under a board of directors, it is owned and funded by the Commonwealth, State and Territorial Ministers for higher education.

Its responsibilities include:

- Conducting quality audits of self-accrediting Australian higher education institutions;
- Providing public reports on audit outcomes;
- Commenting on the criteria for recognition of new universities and other awards; and
- Reporting on the relative standards and international standings of the Australian system.

There is a five-year audit cycle—the first to be completed in 2007. A panel of domestic and international experts carries out the audits.

With regard to the specific funding arrangements between the Commonwealth government and the institutions, the Institutional Assessment Framework (IAF) was introduced in 2004 to provide a standardized accountability mechanism of public higher education institutions. The IAF assesses each institution on four principal elements:

- Organizational sustainability
- Achievements (student places, student access and support, research activity)
- Quality outcomes
- Compliance

Germany

In Germany, constitutional and administrative arrangements promote and, indeed, rely on co-operation between the Federal and Länd (State) governments. Throughout recent history, the two orders of government have worked closely together on educational issues. The Länder supported the constitutional amendments of the 1960s to reflect the need for a national approach to educational planning and there was agreement on the Framework Act for Higher Education in 1976. This legislation, supported by both federal and Länder regulations, gives the country a nationwide framework to establish standards and consistent practices in higher education in Germany.

The framework provides general objectives and general principles, including definitions for higher education, study, teaching and research, admission, membership, participation and staffing. The accompanying regulations go a long way to standardize education across the country and each Länd is free to provide more detail on the framework principles.

To work toward a comparable standard of scientific and academic training and degrees, in 2002 the Standing Conference of the Ministers of Education and Cultural Affairs, and the Association of Universities and other Higher Education Institutions set up a system of accreditation. The system involves a formalized and objective process to ensure that a course of study fulfils minimum standards. The Conference also outlined a development plan for quality assurance for higher education in all Länder and institutions of higher education. The Quality Assurance Project (Project Q) is an initiative to bring together information and stakeholders regarding quality development and quality assurance in higher education in Germany.

New Zealand

In New Zealand, the current arrangements for PSE have resulted from dramatic social and economic reforms designed in the 1980s to modernize the country's institutions and processes. In PSE, the system has strongly defined roles for various partners, and the government defines a system-wide framework of goals, standards and accountability. There is a strong accreditation system in place and an accountability framework tied to funding.

The Ministry of Education oversees the strategic dimensions of policy, analysis and monitoring of higher education in New Zealand. Given the shift in the role of government and the emphasis on accountability and performance, several agencies pivotal to maintaining quality, standards and accountability in higher education have been formed:

- The **New Zealand Qualifications Authority** is responsible for maintaining a comprehensive framework of qualifications in higher education. The authority establishes and maintains the New Zealand Register of Quality Assured Qualifications, administers trade-, vocational- and school-sector assessments and evaluates overseas qualifications for immigration and employment purposes.
- The **Tertiary Education Advisory Commission** was established in 2000 to provide advice on the future of the country's tertiary education system. The Commission developed a Tertiary Education Strategy for 2002–2007 that outlined national goals and key changes for the system that are important to help the sector realize national goals. The strategy includes articulation of specific strategies, and the minister of education releases a Statement of Tertiary Education Priorities every one to three years to set out the government's immediate priorities.

- A permanent body, the **Tertiary Education Commission (TEC)**, was established as a Crown entity in 2003. It consists of six to nine ministerial appointments, and is responsible for implementing the Statement of Tertiary Education Priorities, allocating funding, advising government, conducting research and monitoring.

New Zealand has a comprehensive system of quality-assurance bodies including: the Institutes of Technology and Polytechnics Quality (ITP); the NZ Vice-Chancellors' Committee; and the Colleges of Education Accreditation Committee. The Committee on University Academic Programs sets criteria to validate and monitor university qualifications and coordinates advice on common standards for university entrance.

Switzerland

Both the federal government and the cantons share jurisdiction for higher education in Switzerland, and federal legislation in post-secondary education is administered by the cantons. There is a federal Office for Education and Science.

Switzerland's higher education system is very decentralized. Strong autonomy rests with the cantons and, in many cases, with the institutions. This has resulted in a large number of coordinating and advisory bodies, most of which have their origins in the institutions. The sectors of higher education—the universities, the Swiss universities of applied sciences, the schools for teacher education and the Swiss Scientific Academies—each have a conference or Council.

There is a Conference of Cantonal Ministers of Education whose mandate is to deal with co-operation, coordination and such issues as accreditation and quality assurance, but overall system-wide coordination appears limited. It is not clear how extensive system-wide planning and coordination are.

Co-operative federalism is strongly emphasized in Article 44 of the new Constitution, adopted in 2000—the *partnership article* of the Federal Constitution—which states "Confederation and Cantons shall collaborate and shall support each other in the fulfilment of their tasks."¹⁴⁶

THE EXPERIENCES OF OTHER COUNTRIES

The European Union

In the European Union (EU), responsibility for education and higher education remains with the various countries in the EU, and there is no common policy for these areas. However, all countries have recognized that education and training are essential elements to realizing shared social and economic goals.

To this date, 45 European countries have signed the Bologna Declaration, designed to establish a European area of higher education by 2010, whereby the different national systems would use a common framework for higher education. The Declaration involved actions related to six areas:

1. A system of transparent, comparable academic grades
2. Standardization of qualifications for bachelor's, master's and doctorate degrees
3. A system of accumulation and transfer of credits
4. Mobility of students, teachers and researchers
5. Co-operation on quality assurance
6. The European dimension of higher education, particularly with regards to curriculum, inter-institutional co-operation, mobility schemes and integrated programs of study, training and research.

In 2000, the European Council in Lisbon set the objective to become, by 2010, "the most competitive and dynamic knowledge-based economy in the world, capable of sustaining economic growth, with more and better jobs and greater social cohesion." Following the Lisbon declaration in 2000 and the invitation of the European Council to "undertake a general reflection on the concrete future objectives of education systems, focussing on common concerns and priorities while respecting national diversity," the Education Council met several times and, in 2002, endorsed common objectives for education and training in Europe. Recognizing the importance of making progress towards these goals, the Ministerial Council releases an annual report that charts progress. The report contains indicators, benchmarks and statistics to demonstrate progress and performance in education and training.

There is an Education and Culture Directorate-General (DG) for the European Union whose mission includes building a Europe of knowledge, developing the European cultural area, and involving citizens in European integration. The Education and Culture DG implements a wide variety of programs, with particular emphasis on mobility and trans-national co-operation projects.

The United Kingdom

The United Kingdom (U.K.) is a unitary state constitutionally, but has traditionally operated as a quasi-federal system as there have been separate authorities for higher education in England, Scotland, Wales and Northern Ireland.

The history of post-secondary education in the U.K. is marked by deep-rooted traditions of institutional autonomy. However, there have been a great many examples in recent years of special commissions, white papers and other policy initiatives aimed at redirecting and reforming various aspects of PSE. Many of these were launched in recognition of the need to keep pace with global developments in higher education globally. As in most other OECD countries, a much-enhanced focus on accountability, quality and equitable access has led to moves to establish and strengthen quality assurance and statistical agencies.

In January 2003, the government published a paper, *The Future of Higher Education*, as a blueprint for major reform of the system. The plan was based on the assumption that, although the U.K. had built a world-class higher education system, action was required to address emerging challenges. In July 2004, the Higher Education Act was passed to accommodate the reforms and to introduce a new tuition scheme.

The reforms include:

- Changes to funding
- Improving funding of research and knowledge transfer to boost world class excellence and strengthen the work of universities in regional development
- Improving and rewarding excellent teaching
- Improving access
- Supporting participation of those from disadvantaged backgrounds.

Mechanisms put in place to support these changes include:

- The **Office for Fair Access (OFFA)**—an independent body with a mandate to promote participation of non-traditional students to universities;
- The **Research Forum**—established in 2003 to strengthen dialogue between government ministers and the higher education sector on research;
- The **Higher Education Academy (HEA)**—set up in 2004 to work with the U.K. higher education community to enhance the student experience; its functions include research and evaluation, accreditation of programs and individuals, a subject network to support learning and teaching;

HOW CANADA MEASURES UP INTERNATIONALLY

- The **Leadership Foundation for Higher Education**—launched in March 2004 to identify and meet key management/leadership needs, and to promote professional development and best practices;
- **Office of the Independent Adjudicator (OIA)**—set up in January 2005 to serve as a student ombudsman;
- **Adult Learning Inspectorate (ALI)**—established in 2000 under the U.K. Learning and Skills Act, the ALI is the inspectorate for skills, workforce development and preparation for employment. Working with employers and training providers across the public and private sector, it is a key part of the government's drive to increase skills and productivity and help adults and young people reach their full potential.

In addition, there are two mechanisms from earlier initiatives that still play a significant role in U.K. higher education:

- The **Quality Assurance Agency for Higher Education**, established in 1997 to coordinate and integrate quality assurance for higher education in the U.K. This independent agency's role is to encourage continuous improvement and the establishment of effective standards for higher education. The agency works with higher education institutions to define academic standards and quality. It also conducts and publishes reviews against defined standards.
- The **Higher Education Statistics Agency (HESA)**, set up in 1993 as a follow-up to the recommendations from the government "White Paper on Higher Education: A New Framework" as a central source for higher education statistics. The agency's objective is to collect and publish standardized data.

The most recent initiative in higher education is the commissioning of the Leitch Review to identify the U.K.'s optimal skill mix for 2020, "to maximize economic growth, productivity and social justice." Lord Leitch filed an interim report in December 2005 which signals that the U.K. must urgently address a range of issues if it is to have a world-class skills base by 2020. The interim report profiled three issues: the number of low-skilled adults without qualifications, basic literacy and numeracy; the need to invest in more intermediate skills; and the need to increase the proportion of adults holding a degree.

The United States

In the United States (U.S.), education is a state responsibility. The federal role has primarily been focussed—as it is in Canada—on funding research and student financial assistance. Despite state jurisdiction, there is in the U.S.—as there is not in Canada—a federal office of education, led by the Secretary of Education,

with a mandate to coordinate the various federal activities directly and indirectly bearing on education issues. The existence of such an office is the occasional subject of controversy, but it has been in place now for several decades.

The U.S. federal government has, from time to time, attempted to articulate a national vision and national goals for PSE. The President of the United States frequently refers to educational goals at all levels and to requirements for K to 12 educational performance that must be met by states. There are also some limited system-wide processes and mechanisms, but the federal role is targeted to access issues, student assistance and promoting equality. The National Governors' Association and the Council of State Governments often focus on educational issues, in a manner not dissimilar to the work in Canada of the Council of the Federation and the Council of Ministers of Education, Canada. A number of regional inter-state mechanisms exist for planning and institutional accreditation.

The decentralization of the U.S. system results in a complex network of higher educational institutions. Some argue this comparative lack of coordination impedes the country's ability to grow its knowledge-based economy. Others point to the fact that productivity growth in the U.S. is well above the OECD average and that the system has served the country well.

In 2005, the U.S. Secretary of Education created a Commission on the Future of Higher Education, with a mandate to develop a national strategy for PSE to address the country's education needs. Public hearings around the U.S. were held to stimulate a national dialogue on questions such as: "What skills do students need for the 21st century? How can we make sure America stays the world's leader in academic research? How can we make sure opportunities for quality education and best jobs are open to all students?"

The Commission encountered some controversy, including division among its members, and released a report in September 2006 to further the national dialogue. The report called for changes to increase access, affordability, quality and innovation, and accountability in the system. It was very critical of the current state of higher education in the U.S. and offers an extensive list of recommendations that cover many topics—from an overhaul of the need-based financial aid system for students to better preparation of students for college. The report emphasized the need to collect better national data across the system, and also advocated the use of the College Learning Assessment Tool to test student skills gained in higher education, as a measure to increase accountability of colleges with regard to student performance.

THE EXPERIENCES OF OTHER COUNTRIES

Observations on international trends

Table 11.1.1 attempts to summarize some of the major characteristics related to planning processes and system-wide structures in place internationally. It should be interpreted with caution, as it tends to oversimplify the degree of complexity in most countries, which have institutional systems and processes that have evolved over time. However, it is useful to indicate some of the similarities and differences between Canada and its international competitors/partners.

Table 11.1.1 **Countries' planning processes and system-wide structures**

	MAJOR REVIEW IN LAST 5 YRS.	SYSTEM-WIDE GOALS & OBJECTIVES	FUNDING ALIGNED W/NATIONAL PRIORITIES	QUALITY ASSURANCE AGENCY 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	Related to unification	Yes	Tax sharing arrangement	Process under development	Yes	Yes
U.S.	Yes	Under review	Ltd. federal \$ targeted	Institutionally based	No	Yes
Switzerland	*	*	*	Yes	Yes	Federal Office of Education
U.K.	Yes	Yes	Yes	Yes	N/A	N/A
NZ	No	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 meets regularly to share information	No—Federal Human Resources Ministry funds labour-market programs, research, literacy and other initiatives related to PSE.

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

The most obvious comparisons for Canada are with other “federal” systems, many of which have a strong provincial/state jurisdictional emphasis on post-secondary education. Other non-federal examples are cited because they are countries of intense interest to Canada that have developed aggressive reforms and approaches to ensure their PSE systems meet national objectives.

Lessons learned

- Almost all PSE sectors—and the PSIs 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 nation-wide 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/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.

SYNTHESIS AND FUTURE DIRECTIONS

12.1 Synthesis of findings

This report has compiled existing data and evidence to shed light on the performance of Canada's post-secondary education sector at the pan-Canadian level. It examined eight key goals and objectives identified from common themes that were extracted from provincial/territorial goals for post-secondary education.

Canada ranks high relative to other OECD countries in terms of the investment made in PSE and the educational attainment of the population. CCL's poll of Canadians shows that most perceive post-secondary institutions as doing a good job of delivering quality education to learners. Surveys of students, graduates and employers conducted by provinces and PSIs also reveal consistently high levels of satisfaction with Canadian post-secondary education.

Canada's PSE attainment is made possible through the combined efforts of institutions, governments and Canadian taxpayers. Overwhel-

mingly, PSE in Canada is provided through publicly supported post-secondary institutions. Canada's rank of second in the world in PSE attainment speaks volumes about the benefits of public expenditures on education. Canada ranks fifth in the world in terms of university degrees granted, so the second-place ranking for overall PSE achievement reflects the impact of the

college systems created in many provinces over the past 40 years. In addition to providing technical and vocational diplomas and certificates, in recent years many provinces have established legislative and regulatory frameworks for private PSIs to provide broader programming than in the past—up to and including the granting of degrees.

Canada's high standings have slipped in recent years, however, as other countries increase their investments in PSE and as their populations achieve higher rates of post-secondary attainment. The review offered in this report shows that there are trends—listed in the next pages—which require immediate attention.

Canada ranks high in post-secondary education investment and attainment. In this sense, it has a positive record. However, the emergence of a knowledge economy, coupled with domestic demographic trends and actions by global competitors' actions to address PSE challenges, calls for systematic, targeted and strategic PSE support. Because Canada cannot be said to possess a true national PSE system, it faces severe challenges to achieve the kinds of national goals that characterize other advanced economies and societies.

SYNTHESIS AND FUTURE DIRECTIONS

12.1.1 LABOUR-MARKET FORECASTS PREDICT SKILL SHORTAGES, PARTICULARLY IN SKILLED TRADES

Almost two-thirds of new jobs now require post-secondary education. Forecasts predict a mismatch between supply and demand for occupations that require at least a college diploma or apprenticeship training, as well as for university-level management occupations. Without changes in participation rates, there will be an insufficient supply of PSE graduates to fill vacancies resulting from growth and retirements, and within short order.

Canada's current system of training apprentices is unable to keep up with demand. Despite significant and creative investment on the part of several provinces, as well as tax incentives and other financial supports for apprentices

from the federal government, barriers to matching supply and demand remain and the gap continues to grow:

- The retirements of older workers in the current journey-person workforce will create skilled-labour shortages in the next few years
- There is a long lead time to produce certified journey people
- Employers are not always able to provide training positions for apprentices
- Young people do not always view the skilled trades as an attractive or viable career

Without major improvements, serious shortages of tradespeople in numerous occupations can be anticipated over the coming decade.

12.1.2 CANADA'S R&D INTENSITY RANKS 15TH AMONG OECD COUNTRIES AND WOULD BE MUCH LOWER WITHOUT THE R&D CONTRIBUTIONS OF POST-SECONDARY INSTITUTIONS

R&D—and its commercialization—fuel economic growth in modern economies. R&D leads to innovation in processes and products, contributing to economic diversification and enhancing productivity that is required to maintain and improve standards of living and quality of life.

In OECD countries—including Canada—private business investment is the single largest contributor to R&D. But Canada's business R&D investment is substantially lower as a proportion of total R&D than in many other OECD countries, and is very concentrated in central Canada because of the structure of Canadian industry.

Research is one of the very few areas where there is a national focus and perspective, given the major role of

the granting councils. Canada depends much more on post-secondary institutions for R&D than other OECD countries and Canadian investment in university research funding ranks high as a result. As well, the concentration of business R&D in Ontario and Quebec means that other provinces depend even more heavily on their post-secondary institutions to conduct R&D.

While production of PhDs in Canada has increased, it is still low compared to the need for such highly qualified personnel to initiate innovative research, and to replace soon-to-retire faculty in universities and colleges. The concentration of undergraduate and graduate students in the key scientific and technical disciplines is also low in light of the projected need for, and impacts of, researchers with such skills and knowledge.

12.1.3 AGGREGATE AND AVERAGE STATISTICS ARE POSITIVE, BUT ACCESS TO AND BENEFITS OF PSE ARE NOT EQUALLY DISTRIBUTED AMONG CANADIANS

The extent to which Canadians have access to, and derive benefits from, post-secondary education varies across the population. Individuals from low-income families do not participate in university education at nearly the same rate as do individuals from higher-income families. Colleges serve as an important vehicle to provide post-secondary access to Canadians. Attendance rates at colleges do not vary among income quartiles.

The continuing gap between low- and high-income rates of PSE access is a matter of concern to most Canadians. Similarly, participation and completion rates among Aboriginal Canadians have significantly lagged those of the overall population, although some improvements have been seen in recent years.

The question of accessibility has been a constant theme in Canadian post-secondary education since the end of the Second World War and the arrival of the

post-war Baby Boom generation. CCL's recent public poll demonstrates that access remains a major concern to Canadians, who understand that attaining post-secondary education is crucial to effective participation in the modern economy and society. Canadians see PSE access as a problem for many Canadians, most particularly for those in low-income households.

Five out of six respondents to the CCL poll noted that their community had a college or university. This corresponds with findings of other studies, which indicate that more than 90% of Canadians live within a one-hour drive of a university or college, and over 75% live within a half-hour drive. Access is not so much a matter of the physical presence of a PSI. Instead, concerns surround the sufficiency of spaces available, the affordability of PSE, and the flexibility and availability of programs desired by learners.

12.1.4 NINE MILLION CANADIANS LACK THE LITERACY SKILLS NEEDED IN MODERN SOCIETY

Two in five adult Canadians have not achieved, or have not maintained, levels of literacy considered to be the minimum required to cope effectively with the requirements of a knowledge-driven economy. This poses

significant problems, not just for those individuals, but also for Canada in general, given the increasing emphasis on skills and learning to maintain and enhance standards of living and quality of life.

12.1.5 ONE-AND-A-HALF MILLION CANADIANS HAVE UNMET JOB-RELATED ADULT EDUCATION AND TRAINING NEEDS

Adult learning rates are increasing in Canada but still lag behind job-related adult training rates in the United States. With the ever-increasing demands to upgrade skills resulting from technological change, and the identified skill loss that occurs as a population ages, an adult learning system is critical to Canada's productivity and continued competitiveness. No such national system is currently in place or planned. The OECD's analysis of adult education in Canada was generally negative for this reason.

Some evidence suggests the PSE sector is not flexible enough to meet adult learners' needs. Statistics also show there is weak employer support for adult education and training in Canada, relative to their competitors in other countries. The support that does exist tends to be directed to individuals who already have higher levels of education and those in white-collar jobs.

SYNTHESIS AND FUTURE DIRECTIONS

12.1.6 THE NEEDS OF ADULT LEARNERS FOR MORE FLEXIBLE, AFFORDABLE AND RESPONSIVE METHODS OF ACCESSING PSE ARE NOT ADEQUATELY MET

Canada has not capitalized on its early lead in e-learning. Alternative methods of PSE delivery, including e-learning, are becoming more common, but progress in implementing their use has been slower, costlier and more complex than many had anticipated. Availability of flexible delivery methods—geared to the needs of

older learners with more demands on their time—has not met the expectations of many. This is a challenge that post-secondary institutions will need to address to meet needs of adult learners and to compensate for enrolment pressures driven by demographic trends.

12.1.7 CANADA LACKS NATIONAL-LEVEL MECHANISMS TO ENSURE COHERENCE, COORDINATION AND COMPARABILITY FOR PSE—ISSUES BEING ADDRESSED IN MOST OTHER DEVELOPED COUNTRIES

Almost all international education and training systems—and the PSIs that operate within them—are increasingly focussed on accountability issues and the need to provide an evidence-based analysis of performance, quality, progress and outcomes. Many countries have explicit and transparent mechanisms that articulate specific nationwide goals and objectives, while recognizing the complexity of the PSE sector components and the legitimate, individual roles of the various components within those systems. The process of setting and monitoring national goals and objectives often involves the development of measures and/or indicators, as well as regular reporting on performance and progress toward achievement of

the national goals. Most jurisdictions have also put in place quality assurance bodies or agencies to regulate standards for quality and perform ongoing, independent audits.

Canada has not put any such mechanisms or processes in place at the pan-Canadian level, and still lacks processes for meaningful dialogue between provincial/territorial and federal governments for post-secondary planning and other issues. Consequently, key priorities of quality, access and credit mobility are addressed in a fragmented manner and current initiatives lack a national perspective.

12.2 WHERE TO FROM HERE

Three major priorities emerge from this report's analysis and synthesis that CCL believes require urgent attention from a national or pan-Canadian perspective.

1. Canada needs to articulate a set of **explicit, well-defined goals and objectives** for post-secondary education at the national level, cast in terms of what should be achieved through PSE to maximize the overall well-being of Canada and of Canadians.

The eight goals and objectives employed in this report as a framework for analysis were derived from a number of sources, primarily the formal statements of provincial ministries responsible for post-secondary education across the country. The work of the CMEC in developing the statement of expectations in 1999 and the more recent effort of the Council of the Federation to identify key themes in early 2006 underline the need for, and benefits of, articulating national goals and objectives. Such an effort would be analogous to that in many other jurisdictions around the world, including Australia and the European Union.

2. 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.

There are many examples of indicators and measures against which performance and progress in achieving objectives can be assessed. A lengthy list of such indicators exists at the institutional and provincial levels. Federal departments and agencies, such as the granting councils, also have developed elaborate evaluative frameworks to assess performance against explicit program goals. These indicators and measures, however, are not determined in a coordinated manner.

The lack of comparability hampers efforts to obtain a pan-Canadian perspective on how Canada is doing with respect to goals and objectives that are broadly shared in all parts of the country. The European Union can provide a model for how such an approach could be developed, while maintaining a clear focus on the particular responsibilities and circumstances of individual jurisdictions.

This report has identified a series of indicators for each of the eight objectives but this work represents preliminary steps to start the process. Much more investigation is needed to explore the range of indicators and their usefulness.

3. Canada needs to develop **mechanisms at the national level** to accomplish the tasks outlined in the first two priorities. Such mechanisms are also required to increase access and mobility, and standardize and harmonize levels of quality to improve outcomes, while respecting provincial responsibilities and institutional academic autonomy.

All other countries to which Canada can be compared are increasingly focussed on accountability issues and undertaking evidence-based analysis of performance, quality, progress and outcomes. Some other systems, even federal systems not unlike Canada's, have more formal and transparent mechanisms that enunciate specific nationwide goals and objectives, while acknowledging the legitimate—and individually responsible and accountable—roles of the various players. These other systems have also developed means to monitor progress toward the achievement of such goals in order to address problems and enhance success.

In Canada, provinces and territories have also developed such approaches to accountability but they are, understandably, focussed on the circumstances, conditions and interests of the specific jurisdictions for which they are responsible. While this approach has had undoubted success over the preceding decades, the growing gap between the needs of learners and post-secondary institutions' ability to respond indicate that much can be learned from the work of other jurisdictions in addressing similar issues.

The challenge for Canada's post-secondary institutions is not only to meet demand for more spaces or recruit new faculty, but also to adapt programs, teaching and learning methods to respond to a growing diversity of students, while continuing to keep pace with the fast-changing needs of the economy and society at large. These institutions will require both support and coordination of effort.

Increasing the performance and progress of Canada's post-secondary education sector is in the national interest.

In light of the current and increasing pressures facing PSE in addressing Canadians' economic and social priorities, the status quo is not an option. The current efforts of individual jurisdictions need to be supplemented. Canada requires a much more focussed and coordinated approach to developing goal and objective statements, defining, gathering and analyzing comparable data and indicators, and providing a Canada-wide focus on issues such as accreditation and quality. These activities would strengthen Canada's PSE sector and enhance its capacity to continue to meet Canadians' economic and social expectations.

In the spirit of putting forward constructive ideas for discussion, CCL proposes the following metrics be developed for PSE in Canada. These metrics are related to the Composite Learning Index issued by CCL in May 2006, but go beyond that to include other dimensions that are critical for a more comprehensive and detailed assessment of PSE. Such metrics would be focussed on outcomes and would complement other ongoing measures focussed on inputs, such as expenditures on PSE and on R&D.

- Participation rates, by field of study, by level of credential, by age cohort, by gender, by previous attainment, by socio-economic status, and sub-population
- Completion rates and educational attainment, by the above variables
- Longitudinal studies of income, earnings and employment, and of measures of social benefits of PSE, by the above variables
- Learner costs, borrowing, debt levels, by the above variables
- Participation in adult learning, both for second-chance education for less educated and low-literacy Canadians, and for job-related education upgrading and training, and unmet training needs
- Private sector support for training

The data required to track Canada's performance and progress in PSE are not easily accessible, are found in a variety of sources, are updated on different timetables and use different definitions. The analysis included in this paper identified a number of key gaps that CCL believes can and should be addressed as a matter of priority. Filling such gaps would provide for a significantly improved level of insight into PSE.

SYNTHESIS AND FUTURE DIRECTIONS

The following are the areas of pan-Canadian information gathering that would permit national progress on PSE to be monitored and reported fully to Canadians:

- Post-secondary education data need to be improved to ensure consistency and comparability nationally and internationally.
- Focus attention on key policy areas related to participation, persistence and completion rates and patterns particularly aimed at increasing the PSE participation and completion rates of under-represented groups. Such information and analysis will require comprehensive, consistent, comparable, and timely collection of data on enrolment in and graduation from all Canadian public PSE institutions by such key variables as field of study, gender, program, level, full- or part-time, type of financing, and foreign student status by country of origin. Particular attention needs to be given to trends for under-represented groups.

Knowledge gaps could be filled in part by:

- Supporting the implementation of the nationwide student ID through ESIS and its expansion to cover private institutions.
- Supporting analysis of the current ESIS data for universities through Statistics Canada. Provide resources and continue to resolve issues around the analysis of the college data.
- Developing PSE entrance surveys equivalent to the *Beginning Postsecondary Students (BPS) Longitudinal Study* conducted in the U.S.
- Supporting the implementation of a unified survey that would include the Survey of Approaches to Educational Planning and the Post-Secondary Education Participation Survey.
- Supporting the analysis of the training module of the *Longitudinal Survey of Immigrants to Canada*.
- Enhancing our understanding of affordability by gathering more data and carrying out more analysis on who pays for student tuition, student debt, the total cost of studies and other sources of funding.

- Further analysis and understanding of the apparent paradox between high post-secondary attainment and low literacy rates.

Knowledge gaps could be filled in part by supporting the analysis of the *International Survey of Reading Skills (ISRS)*¹⁴⁷ and by supporting direct literacy skill assessment in the Longitudinal Survey of Immigrants to Canada.

- Work with employers and post-secondary institutions to engage them in effective models of adult education, in light of the need for lifelong learning and the large number of Canadians requiring job-related education and training.

Knowledge gaps could be filled in part by supporting further cycles and analysis of the *Adult Education and Training Survey*, the *Workplace and Employee Survey* and the training component of the *Survey of Labour and Income Dynamics*, and by supporting the development of a pan-Canadian measure of employer satisfaction with newly graduating students in the *Workplace and Employee Survey*.

- Identify program priorities to address the needs of adult learners for more flexible, responsive, and affordable lifelong learning opportunities.

Knowledge gaps could be filled in part by supporting the regular collection and analysis of data on adult education through the *Adult Education and Training Survey* and the training module of the *Survey of Labour and Income Dynamics*.

- Enhance our understanding, through further analysis, of the link between supply and demand in the labour market, with particular attention to the skilled trades and other occupations projected to experience shortages as a result of economic expansion and demographic trends.

Knowledge gaps could be filled in part by supporting the implementation and expansion of the new *National Apprenticeship Survey* and supporting further analysis and expansion of the *Registered Apprenticeship Information System*. Labour-market forecasting methodology needs to be improved—at the local, regional and national levels.

¹⁴⁷ The International Survey of Reading Skills (ISRS) aims to provide information on the social characteristics and linguistic skills of those who tested at Levels 1 and 2 in the International Adult Literacy and Skills Survey (IALSS-2003). The study administered reading tests to identify particular strengths or weaknesses in respondents' reading skills, and will provide information on the relationships between five component reading skills. In identifying and describing the reading and comprehension deficiencies of those at the lowest literacy levels, the ISRS, combined with data from the IALSS, will eventually enable governments, learning institutions, NGOs, business and labour to determine funding priorities, develop appropriate curriculum and focus instruction practices.

- Develop indicators that measure the social benefits of PSE to the well-being of Canadians, demonstrating value for money over and above considerations of economic growth.

Knowledge gaps could be filled in part by supporting the development of a set of indicators of health, civic, social capital and socio-economic returns.

- Work with PSE partners to design concrete processes and mechanisms to facilitate mobility for Canadian learners through a coherent and coordinated national approach to accreditation, credit transfer, credential recognition, and prior learning assessment.

- Develop direct measures of quality and effectiveness of PSE in Canada to replace the proxy and subjective indicators currently being used. The introduction of Canadian-adapted versions of the Study of College Students and the National Survey of Student Engagement, originated in the U.S., are very positive steps in moving toward a clearer understanding of quality in PSE. These developments must be carefully monitored.

Knowledge gaps could be filled in part by the implementation of instruments such as the recent Collegiate Learning Assessment initiative in the United States.

12.3 CCL'S PLANS FOR FUTURE PSE REPORTS

The Canadian Council on Learning's report, *Canadian Post-secondary Education: A Positive Record – An Uncertain Future*, is the first in a series of annual reports on PSE in Canada.

The second report, to be published in autumn 2007, will update key data and analysis on participation, attainment, access, quality, and results and benefits to build a baseline of information to track change over time. In addition, the second and subsequent reports will address some of the key priorities listed above.

A SNAPSHOT OF PSE IN CANADA

Post-secondary education in Canada is a very complex arrangement of various institutions and processes across the 13 provinces and territories.

- There are close to 100 public universities, and approximately 200 public community colleges, degree granting and other institutions in Canada
- 785,000 full-time and 270,000 part-time university students were enrolled in Canada in 2004–2005.¹ The ACCC reported that a further 900,000 full-time and 1.5 million part-time students were enrolled in colleges and related institutions in 2001–2002.²
- Canadian universities awarded around 135,000 bachelor's degrees, 26,000 master's degrees, and 4,000 doctoral degrees in 2004–2005

Each province has structured and organized its approach to the establishment of public PSE institutions somewhat differently. Generally, universities pursue teaching and research mandates providing undergraduate, graduate, and professional degrees. Colleges and institutes tend to focus more on providing vocational, technical and academic courses and programs. Provinces also regulate the provision of post-secondary education and training through private institutions, which vary in number across the country and supply more specific skills training. In recent years some provinces have instituted legislative and regulatory frameworks authorizing some of these private institutions to grant degrees, on the condition that they satisfy specific quality criteria. Overwhelmingly, post-secondary education in Canada is provided through the set of publicly funded universities, colleges and related institutions.

Recognizing that education is a provincial legislative responsibility, the federal government has nevertheless been active in the area for more than half a century. The federal government has mainly funded research, provided student financial assistance, and transfer payments to the

provinces. Funding is also provided to training eligible unemployed workers the Employment Insurance program as well as for Aboriginal Canadians.

Overall, Canada has traditionally been among the highest in terms of resources it devotes to post-secondary education. Public and private expenditures on PSE totalled close to \$28 billion in 2002–2003. Expenditures on post-secondary institutions amounted to 2.5% of GDP in 2001—second among both the G7 and the OECD countries.

Further, Canada has had among the highest participation and the educational attainment rates among the OECD countries. Well over 50% of the working age (25–64) population have some PSE and around 44% have a PSE qualification. Canada is fifth among OECD countries in terms of university graduation and first overall when the training and education provided by colleges and related institutions are included. Indeed, Canada's coveted advantage in expenditure, participation, and attainment has recently been threatened. Several observers have reported that other OECD countries are gradually recognizing the importance of the PSE system and are devoting great efforts and resources to its advancement.

Looking at Canada's PSE attainment comprehensively does in fact blur many issues. The experiences lived by various sub-populations in terms of access is just one example. Also, despite high overall levels of educational attainment, the reality is that there are still a large number of Canadian adults with low literacy levels, with two out of five Canadian adults performing below the desired literacy level to cope with the increasing skills demands of the emerging knowledge and information economy.³

1 Council of the Federation (2006). Discussion Guide: The Future of Post-secondary Education and Skills Training in Canada. Prepared for Competing for Tomorrow: A Post-secondary Education and Skills Summit. Ottawa.
 2 CICIC overview of Canadian education. <http://www.cicic.ca> Accessed July, 2006.
 3 Statistics Canada and OECD (2005). Learning a Living: First Results of the Adult Literacy and Life Skills Survey. Ottawa–Paris.

USING DATA TO MEET NATIONAL OBJECTIVES

National governments have always been interested in determining whether or not their societies have access to an appropriate level of partially or fully funded public services. Many countries in Europe and elsewhere begin the process of measuring the success of the higher education sector as a publicly funded sector by setting national objectives and identifying key performance measures and indicators. These provide means to monitor progress.

The following sections of this annex describe how individual countries use data and indicators to measure their success.

Australia

In the *Higher Education Report 2003–2005 Triennium*, the Government of Australia states that its overarching policy objectives are to:

- Expand opportunity;
- Assure quality;
- Improve universities' responsiveness to varying student needs and industry requirements;
- Advance the knowledge base and university contributions to national innovation; and
- Ensure public accountability for the cost-effective use of public resources.

The government launched a review of higher education in March 2002 and concluded an extensive public consultation process in October 2002. It received more than 730 submissions and held 49 consultation forums involving roughly 800 participants. A reference group provided support and advice through months of consultations and deliberations. The group included a number of eminent Australians representing business, industry, students, the indigenous community, and the higher education and vocational education and training sectors.

The review's central finding was that the framework for funding and policy had become unwieldy, complex and inequitable. There are four key principles that underpin the package of reforms set out in the response to this finding:

1. Sustainability

All existing public self-accrediting higher education institutions must achieve long-term sustainability. The cost of course provision in higher education has increased considerably, often due to factors outside the control of universities, such as increased global competition for academics in key areas and fluctuations in the value of the Australian dollar. Universities must be freed from unnecessary constraints. They should be able to respond flexibly to the needs of their constituencies, including potential and existing students, staff, employers, industry, and local, regional and national communities. Institutions

must be given maximum opportunity—consistent with public accountability and social responsibility—in the following areas:

- To develop innovative responses to rapidly changing environments in teaching and learning;
- To direct and commercialize research; and
- To engage with industry, research institutions and other education providers.

2. Quality

Australia's universities have a reputation for providing high-quality educational experiences, and it is vital that this be maintained and enhanced. A renewed emphasis on teaching and learning outcomes, particularly at the undergraduate level, will help to ensure that students develop knowledge and skills that are relevant to their own needs and to those of employers, professional associations, labour markets and society.

3. Equity

Systemic barriers to the participation of historically disadvantaged groups—in particular indigenous Australians—must be addressed. Individuals should be enabled to fulfil their potential, regardless of their personal circumstances and backgrounds. Targeted intervention measures and new approaches to student financing will seek to encourage participation and retention of under-represented groups.

4. Diversity

Australia needs a first-rate higher education sector with a range of institutions to serve different communities and various requirements. It is neither necessary nor desirable for all universities to be the same. Institutions will create a more diverse system by forging distinct missions within the overall system—and by fostering greater collaboration between individual universities and other education providers, industry, business, regions and communities.

USING DATA TO MEET NATIONAL OBJECTIVES

AUSTRALIA'S MONITORING SYSTEM

Australia publishes two reports that government uses to measure success against set objectives: The *Higher Education Report for 2003 to 2005 Triennium* and the *Review of Higher Education Outcome Performance Indicators*.

1. Higher Education Report for 2003 to 2005 Triennium looks at:

- The major developments of the current/previous year, including:
 - Higher Education Review;
 - National Review of Nursing Education;
 - Review of Rural Veterinary Services;
 - Review of Teaching and Teacher Education;
 - Reports of the Information Infrastructure Committee and Bandwidth Committee;
 - Quality assurance;
 - Postgraduate Education Loans Scheme;
 - Additional assistance for high-cost students with a disability;
 - Workplace Reform Program;
 - Growth in Commonwealth-funded places;
 - Australian Research Council priority research areas;
 - National Survey of Research Commercialisation;
 - National research priorities.
- Student equity outcomes:
 - Enrolments, participation by equity group, regional access, and graduate destinations with starting salaries and satisfaction;
 - Quality, through the quality assurance framework;
 - Internationalization, meaning the participation of international students, expenditure by international students, Australian competitiveness, and qualifications recognition.
- Teaching and learning allocations:
 - Funded student places and base operating grants;
 - Students fees, contributions and loans, including Higher Education Contribution Scheme, fee-paying domestic undergraduate and post-graduate students, Postgraduate Education Loans Scheme, Open Learning Deferred Payment Scheme;

- Support for equity objectives: indigenous education strategies;
- Other operating resources, including Workplace Reform Program and superannuation.
- Research and research training allocations:
 - Framework for higher education research and research training;
 - Block funding for research training;
 - Other support for research, including the Australian Research Council.

2. Review of Higher Education Outcome Performance Indicators

PERFORMANCE INDICATOR	DEFINITION	DATA SOURCE
Progress rates	Student load passed as a proportion of load attempted each year	Data supplied by higher education institutions to DEST
Attrition/retention rates	Proportion of students in a particular year who neither graduate nor continue studying in an award course at the same institution in the following year	Data supplied by higher education institutions to DEST
Graduate full-time employment	Proportion of graduates in full-time employment of those who are available for full-time employment	GCCA Graduate Destination Survey
Graduate full-time study	Proportion of graduates in full-time study	GCCA Graduate Destination Survey
Graduate salary	Starting salaries of graduates	GCCA Graduate Destination Survey
CEQ overall satisfaction	Graduates' overall satisfaction with the quality of their course	GCCA Course Experience Questionnaire
CEQ good teaching	Graduates' satisfaction with their course in terms of feedback, assistance, and interest shown by teaching staff	GCCA Course Experience Questionnaire
CEQ generic skills	Satisfaction with their course in terms of imparting analytical, communication, problem-solving, team work skills, etc.	GCCA Course Experience Questionnaire

Sweden

THE SWEDISH OBJECTIVES FOR HIGHER EDUCATION

In its 2001 Budget Bill, the Government of Sweden proposed that the goal for its education policy be that Sweden should be a leading knowledge nation characterized by high-quality education and lifelong learning for growth and equality.

The government's goal for adult education policy is that all adults be given an opportunity to extend their knowledge and qualifications to promote personal development, democracy, gender equality, economic growth and employment, and a fair distribution of resources.

Financial support for students is part of education policy and should therefore be integral to the government's realization of its goals. People should be able to study without being limited by their financial situation or by a disability.

In the Budget Bill, the government proposed that the goal for research policy be to make Sweden a prominent research nation in those areas where research is of high scientific quality. This goal has been approved by Swedish Parliament, and the government does not propose to change it.

SWEDEN'S MONITORING SYSTEM

Yearly, Statistics Sweden publishes data on the following subjects related to higher education:

ANALYSES, TRENDS AND FORECASTS IN EDUCATION AND THE LABOUR MARKET
<ul style="list-style-type: none"> • Supply and recruitment need of labour
EDUCATION OF THE POPULATION
<ul style="list-style-type: none"> • Yearbook of Educational Statistics • Labour-market tendency survey • Adult learning • Municipal adult education • Educational expenditure • Higher education plans for upper-secondary school pupils • Entrance into the labour market • Longitudinal register of education and labour market statistics • Register on Participation in Education • Educational attainment of the population • Staff training statistics • Panel of students for longitudinal studies
FINANCIAL AID
<ul style="list-style-type: none"> • Repayment of student loans • Approval of financial aid for students
RESEARCH
<ul style="list-style-type: none"> • Government budget appropriations or outlays for research and development • Innovation in the manufacturing and service sectors • Research and development in the private non-profit sector • Research and development in the higher education sector • Research and development in the government sector • Research and development in the business enterprise sector • Research and development in Sweden—an overview, international comparisons, etc.
HIGHER EDUCATION SECTOR
<ul style="list-style-type: none"> • Employees in higher education • Annual report for universities and university colleges

USING DATA TO MEET NATIONAL OBJECTIVES

THE CHANGING FACE OF HIGHER EDUCATION

Sweden has also published a policy document—*The Changing Face of Higher Education*—in which the government details how the higher education sector is faring after the introduction of various reforms. The publication aims to gauge the performance of the higher education sector against the various objectives that Sweden has set for its post-secondary education.

1. Trends and tendencies

- A high proportion of Sweden's GDP is spent on higher education
- Sweden tops OECD statistics for R&D
- Universities are being nurtured as knowledge centres
- Internationalization is a stated goal
- Emphasis is on flexible education and training using IT
- The third priority—contact and collaboration with business and industry, public sector activities, culture and adult education—is being pursued
- Emphasis is on increasing research and post-graduate training

2. Changes in Swedish higher education

- Higher education institutions are expanding
- Enrolment in higher education is expanding
- Description of the higher education sector today
- Significant reforms took place in 1977 and 1993

3. High standards of education

- The National Agency for Higher Education

4. Organization and teaching posts

- Organizational structures at institutions of higher education
- Teaching posts

5. Undergraduate education

- Courses, programs and credit points
- Degrees
- Funding undergraduate education
- Admissions to undergraduate education
- The Swedish scholastic aptitude test
- Funding for students
- Women and men alike
- Social and ethnic diversity
- Lifelong learning
- Distance learning
- Information technology

6. Education without frontiers

- A global education market
- Contract training or commissioned education
- Recognizing foreign degrees
- Increased mobility between Sweden and other countries

- Exchange programs
- Socrates/Erasmus
- Linnæus/Palme
- The Visby Program
- The Nordplus Program

7. Research at the highest international level

- Funding of research and post-graduate training
- External resources
- A new organizational structure for research funding
- Postgraduate training
- Admission to post-graduate training
- Postgraduate training and degrees
- Study funding in post-graduate training
- Research information on the internet

THE SWEDISH UNIVERSITIES AND UNIVERSITY COLLEGES ANNUAL REPORT

The Swedish Universities and University Colleges Annual Report outlines higher education activities in Sweden. The report summarizes developments prior to and including the 2004 fiscal year and covers state and private universities and university colleges. The report also presents some indicators about Swedish higher education from an international perspective. Furthermore, the report provides a basic description of the academic structure in Sweden and the regulatory framework for the higher education sector today. A subsequent section presents key data for each university and university college about students, staff and finance. The annual report's analysis is based on information obtained from a number of sources, including annual reports published by Swedish universities and university colleges, and statistics produced by Statistics Sweden.

The report looks at the following:

- Undergraduate programs
- Postgraduate programs
- Research
- Finance
- Staff
- Labour market
- Evaluation results
- International comparisons in terms of:
 - Higher education expenditure
 - The expansion of higher education
 - Number of years to completion
 - Proportion of students in medicine and nursing
 - Swedish growth in natural sciences and technology
 - Number of postgraduate degrees
 - Proportion of higher education attainment
 - Student mobility
 - Foreign students

Finland

Finland measures post-secondary education achievement against the following objectives:

- Ensuring the basic right to education for all;
- Improving the quality and impact of education;
- Improving the effectiveness of the education system;
- Improving the retention rate;
- Creating closer ties with working life;
- Supporting children and young persons;
- Promoting adult education;
- Strengthening research activities;
- Developing teaching and learning environments;
- Advancing international co-operation;
- Promoting equality and preventing exclusion;
- Promoting immigrant education and training.

In addition, the emphasis in university education and research will be on:

- Renewal of the degree structure and development of teaching;
- Student selection;
- Regional impact;
- Quality enhancement in education and appropriate quality systems;
- Internationalization in education and research;
- Postgraduate education;
- Quality enhancement in research and impact analysis.

Snapshot in numbers:

- Number of universities by type;
- Number of students by age and level of educational attainment;
- Number of degrees by level;
- Number of staff—teachers, researchers and graduate students;
- Funding: budget, investments, supplementary funding, budget funding as a percentage of GDP;
- Space allotted for higher education institutions;
- Number of students in open-university instruction;
- Number of students in continuing education;
- New students per teacher;
- Undergraduate students per teacher;
- Master's degrees per teacher;
- Doctorates per professor;
- Indicators of social impact, for example employment and placement in postgraduate education for those with master's and doctorates;
- University dropouts;

- Bachelor's or master's degree dropouts in specific degree programs;
- Bachelor's or master's degree dropouts for the entire university, where the student does not continue in any other education sector.

THE UNIVERSITIES ANNUAL REPORT

The report provides information about the following:

Students

- Student selection by field of study;
- Matriculated students and university entrants (historical progress);
- Number of students (historical overview);
- Bachelor's and master's degrees;
- Online teaching (no data yet).

Post-graduate education

- Percentage of licentiates and doctorates;
- Percentage of doctoral students by field of study;
- Percentage of women among new students, master's degrees and doctorates;
- Academy of Finland decisions on research funding by field of research;
- Research personnel;
- Academy of Finland research funding to universities;
- R&D funding by administrative sector.

Open university and continuing education

- Number of students in adult education.

Steering and structural development

- Operating expenses of universities per annual accounts data;
- Educational research and cultural appropriations in the state budget and supplementary budgets and their distribution by sector;
- Total funding of universities;
- External funding breakdown by source.

International and European Co-operation

- Number of student exchanges;
- Number of students entering and leaving Finland under exchange programs.

Social function

- Knowledge transfer;
- Regional impact;
- Employment.

USING DATA TO MEET NATIONAL OBJECTIVES

Denmark

In June 2002, the Danish Government published a report—*Better Education. Action Plan*—in which they detailed their vision for post-secondary education.

The report stated that a well-functioning, high-quality education system is a basic prerequisite if Denmark is to ensure growth and welfare for individuals and for Danish society as a whole.

The Danish Government envisions a flexible education system that offers education and training courses at a high level of proficiency and competence. The courses must be relevant and meet the business sector's and the public sector's qualification needs.

The government's goal is that Danish education and training will keep pace with the best in the world. This applies to both general and vocationally oriented courses of education. The prerequisite to achieve this target is a significantly strengthened effort within five areas:

- Qualifications and competencies
- Flexibility
- Innovation
- Freedom of choice
- Output management

The aim is that everyone acquire a number of individual competencies, be prepared to take part in society, and acquire an adequate knowledge about society's basic values.

Education should develop students as independent individuals by promoting such qualities as initiative, courage, enthusiasm and the desire to learn something new. Considering the rate at which new knowledge is created, it is of critical importance that everyone acquire a basic foundation of general, personal and social competencies, including the desire and ability to pursue further education.

Education should make it possible for an individual to cope on his or her own, to develop his or her potential and to make his or her unique contribution to civil society.

In the global economy, production and use of new knowledge are keys to increased growth, employment and welfare. The growth of the Danish economy will depend on growth in the workforce and on keeping workers in the labour market beyond the age of early retirement.

To keep pace with international standards for proficiency, competence and quality, international approaches must be integrated into teaching in all courses and subjects. Denmark must actively take part in international quality development, evaluation and benchmarking—and use those data to match the best education systems in the world.

Denmark must contribute to the international mobility of students, teachers and the working population by increasing its recognition of results and credits acquired at educational institutions abroad. At the same time, it would be desirable that experience and prior learning in Denmark be recognized abroad.

In the higher education arena, Denmark has taken an active part in the Bologna Process, which, among other things, seeks to ensure a European credit transfer system, comparable degrees and better quality of education overall. In the field of vocational education and training, similar co-operative ventures are under way.

Qualifications and competencies

All levels of education must ensure a high and relevant standard for qualifications and competencies. This includes the contents of programs, all educational courses offered, and the educational structure overall.

Flexibility

The education system must live up to expectations regarding employee qualifications and competencies. Denmark must organize its education system and design its individual courses to offer the greatest possible flexibility. This includes maximizing each student's options to choose a course of education. The focus must be on lifelong learning, modular courses and e-learning.

Innovation and entrepreneurship culture

This flexibility must also support a change of attitude—one that will inspire innovation and entrepreneurship; students must rediscover the desire to work. Denmark's education system must prepare young people for a working life in the labour market of the future, where it will be both challenging and attractive to start something new and to be independent.

Free choice

The government highly values citizens' free choice. People must be free to choose their educational institutions. To this end, the government must ensure an adequate supply of education and training throughout the country through a regionally balanced institutional structure.

Output management

Educational institutions must be given a greater degree of freedom and a better framework for quality development. They must have adequate freedom to meet the new requirements of increased quality, proficiency and competencies. An increase in self-management calls for well-functioning, sustainable and regionally based educational institutions.

U.K.

Since 1999, the four U.K. funding bodies—the Higher Education Funding Council, Higher Education Council for Wales, the Scottish Higher Education Funding Council, and the Department for Employment and Learning—have published annual performance indicators (PIs) to provide robust and useful management information for higher education institutions. These indicators are intended to offer an objective measure of how a higher education institution is performing. They currently cover:

- Widening participation indicators
- Non-continuation rates
- Module completion rates
- Research output
- Employment of graduates

WIDENING PARTICIPATION INDICATORS

The tables under this indicator present the percentage of students from state schools or colleges, specified socio-economic classes and low-participation neighbourhoods. The tables include:

- Young full-time first degree entrants 2004–2005;
- Young full-time undergraduate entrants 2004–2005;
- Young full-time other undergraduate entrants 2004–2005;
- Mature full-time undergraduate entrants 2004–2005;
- Part-time undergraduate entrants 2004–2005; and
- Mature full-time other undergraduate entrants 2004–2005.
- The following supplementary data provide some background information and context figures used in the derivation of benchmarks:
- Percentage of young full-time first degree entrants from under-represented groups, by Government Office region 2004–2005;
- Young entrants to full-time first degree courses by subject and entry qualifications 2004–2005;
- Mature entrants to full-time first degree courses by subject and entry qualifications 2004–2005;
- Percentage of young entrants to full-time first degree courses from state schools by subject and entry qualification 2004–2005;
- Percentage of young entrants to full-time first degree courses from NS-SEC Classes 4, 5, 6 and 7 by subject and entry qualification 2004–2005;
- Percentage of young entrants to full-time first degree courses from low participation neighbourhoods by subject and entry qualification 2004–2005;

- Percentage of mature entrants to full-time first degree courses from low participation neighbourhoods by subject and entry qualification 2004–2005.

Widening participation of students in receipt of disabled students' allowance

The indicator is the percentage of students who are in receipt of Disabled Students' Allowance. The table is in three sections, which, in turn, cover:

- full-time first degree students;
- full-time undergraduates (on first degree, diploma and other undergraduate non-degree courses); and
- part-time undergraduates studying at least 50% of the time.

Each section gives the number of students in the category, the percentage who are in receipt of DSA (the indicator), and the benchmark. The benchmark is based on entry qualifications of the students and their subject of study.

Data tables include:

- all undergraduates 2004–2005; and
- full-time first degree students in receipt of Disabled Students' Allowance (DSA) by subject and entry qualifications, 2004–2005.

NON-CONTINUATION RATES

These tables look at non-continuation rates for students at an institution. They are presented in two ways. The first considers students who start in a particular year, and indicates whether they are still in higher education one year later. The second method looks at projected outcomes over a longer period. The tables are broken down into the following categories:

- Full-time first degree entrants 2003–2004;
- Young full-time first degree entrants 2003–2004;
- Mature full-time first degree entrants 2003–2004;
- Full-time other undergraduate entrants 2003–2004;
- Full-time first degree entrants 2002–2003;
- Full-time other undergraduate entrants 2002–2003;
- Full-time students starting first degree courses 2003–2004.

The supplementary tables relate to non-continuation after year of entry and projected outcomes:

- Young entrants to full-time first degree courses: non-continuation following year of study 2003–2004;

USING DATA TO MEET NATIONAL OBJECTIVES

- Mature entrants to full-time first degree courses: non-continuation following year of study 2003–2004;
- All entrants to full-time other undergraduate courses: non-continuation following year of study 2003–2004;
- All institutions transition matrix for Sector 2003–2004;
- Starters on full-time first degree programs by start year of program 2003–2004.

MODULE COMPLETION RATES

Progression rates of part-time students are not as straightforward to define as those of full-time students. Although we can tell when a part-time student has completed a course if he or she obtains a qualification, it is difficult to tell when such a student has not completed a course and does not intend to finish it. The table looks at completion rates of part-time students by considering the number of modules that have been passed.

Data Table:

- part-time undergraduates 2004–2005

RESEARCH OUTPUT

The indicators here look at the number of PhDs awarded—and the amount of research grants and contracts obtained—relative to academic staff costs of an institution, and relative to the funding council allocation of quality related (QR) research funds to that institution. Each indicator is expressed as the proportion of output relative to the rest of the sector per proportion of input relative to the rest of the sector. To take account of the different patterns of input to output in different cost centres, the ratios are obtained for each cost centre, and then combined to give the single indicator.

The four indicators are:

- Proportion of PhDs awarded per proportion of academic staff costs;
- Proportion of PhDs awarded per proportion of funding council QR funding allocation for research;
- Proportion of research grants and contracts obtained per proportion of academic staff costs; and
- Proportion of research grants and contracts obtained per proportion of funding council QR funding allocation for research.

Data Table:

- Share of research output per share of research input 2004–2005

EMPLOYMENT OF GRADUATES

The employment indicator expresses the number of graduates who say they are working or studying (or both) as a percentage of all those who are working or studying or seeking work. All other categories are excluded from this indicator.

Data Table:

- Leavers obtaining first degrees from full-time courses 2004–2005
- Supplementary Tables:
- Employment rates by subject of study 2004–2005;
- Employment by entry qualification 2004–2005;
- Employment by age on entry to higher education 2004–2005;
- Employment by gender 2004–2005;
- Employment by ethnic group 2004–2005.

Bologna for Pedestrians

In 1999, ministries from 29 European countries signed the Bologna Declaration, which aims to establish a European Higher Education Area by the year 2010. This will facilitate mobility of people, increase transparency and recognition of qualification, enhance quality of European higher education, and improve the attractiveness of European institutions for third-country students. To date, 16 additional countries have joined the Bologna Process, bringing the total number of countries to 45.

In 1999, ministers agreed on six initiatives related to higher education in Europe:

- A system of academic grades which are easy to read and compare, including the introduction of the diploma supplement (designed to improve international transparency and facilitate academic and professional recognition of qualifications);
- A system essentially based on two cycles: a first cycle geared to the employment market and lasting at least three years, and a second cycle (master's) conditional upon the completion of the first cycle;
- A system of accumulation and transfer of credits (of the European Credit Transfer System type already used successfully under Socrates-Erasmus);
- Mobility of students, teachers and researchers;
- Co-operation with regard to quality assurance;
- The European dimension of higher education.

Subsequent meetings to evaluate the progress of the Bologna Process resulted in more actions and recommendations:

PRAGUE, 2001

Lifelong Learning

Lifelong learning is adopted as an essential element of the European Higher Education Area. Lifelong learning strategies are necessary to face the challenges of competitiveness and use of new technologies. They are also important to improve social cohesion, equal opportunities and quality of life.

Higher Education Institutions and Students

Higher education institutions (HEIs) and students are competent, active, and constructive partners in the establishment and shaping of the European Higher Education Area.

Promoting the Attractiveness of the European Higher Education Area

Ministers agreed that the following are important:

- Readability and comparability of European higher education degrees through a common qualification framework;

- Coherent quality assurance and accreditation/certification mechanisms;
- Quality of higher education and research;
- Benefits of a European Higher Education Area through program diversity; and
- Increased collaboration between and among European countries.

BERLIN, 2003

European Higher Education Area and European Research Area—Two Pillars of the Knowledge-Based Society

- It is necessary to go beyond the present focus on two main cycles of higher education to include the doctoral level as the third cycle in the Bologna Process.
- Increase the role and relevance of research to technological, social and cultural evolution and to the needs of society.
- Stronger support—including financial—and appropriate decisions from national governments and European bodies to surpass barriers that inhibit the achievement of Bologna goals.

Stocktaking

The Follow-up Group is assigned to prepare detailed reports on the progress and implementation of intermediate priorities:

- Quality assurance
- Two-cycle system
- Recognition of degrees and periods of study

BERGEN, 2005

Taking stock on progress for 2007

The Follow-up Group will look for progress in:

- Implementation of standards and guidelines for quality assurance as proposed in the European Association for Quality Assurance (ENQA) report;
- Implementation of national frameworks for qualifications;
- Awarding and recognition of joint degrees, including at the doctorate level; and
- Creation of opportunities for flexible learning paths in higher education, including procedures for recognition of prior learning.

A comprehensive review and analysis of nine countries—the U.K., Sweden, Finland, Germany, France, Croatia, the Netherlands, Norway and Australia—provides some perspective on how some European countries are harmonizing their post-secondary systems with the Bologna Process.

HOW HAVE COUNTRIES HARMONIZED THEIR POST-SECONDARY SYSTEMS WITH THE BOLOGNA PROCESS?

U.K.

VARIABLE DEFERRED FEES

The most significant legislative reform in the U.K. has been the *Higher Education Act 2004*. The Act incorporates the Government's proposals to introduce variable deferred fees in England for full-time undergraduate students who commence their courses from 2006–2007. Higher Education Institutions will be able to vary their fees between £0 and £3,000 per year for each course. Up-front payment of tuition fees for full-time undergraduate students from 2006–2007 will be abolished. Instead, students will be able to take out a loan for fees, repayable only when they are earning more than £15,000, and then in line with income and at no real rate of interest. The Welsh Assembly Government has made a commitment not to introduce variable fees before 2007–2008 at the earliest, but has also committed to introduce fee-deferral arrangements from 2006–2007 for Welsh domiciled students on the same basis as in England. Northern Ireland Ministers are currently consulting on legislation to introduce a similar arrangement as that being put in place in England.

QUALIFICATIONS

The basic structure of U.K. degrees already conforms to the Bologna model of three main cycles of bachelor's, master's and doctoral degrees. Foundation degrees, designed to create intermediate awards strongly oriented towards specific employment opportunities, were introduced in 2001 and are available in England, Wales and Northern Ireland. Over 24,000 students studied for Foundation Degrees in 2003–2004, compared with 12,400 for the previous year—which demonstrates their increasing popularity. In terms of the Bologna Process, these degrees are intermediate qualifications within the first cycle.

FOUNDATION DEGREES (LABOUR MARKET/SKILLED WORKFORCE SECTION)

Foundation Degrees were introduced by the Department for Education and Skills (DfES) in 2001, to provide much-needed graduates for the labour market to address particular skill shortages. Foundation Degrees also aim to contribute to widening participation and lifelong learning by encouraging participation by learners who may not previously have considered studying for higher-level qualification.

Foundation Degrees are considered within the Intermediate level of the Framework for Higher Education

Qualifications (FHEQ) for England, Wales and Northern Ireland, and are recognized as an award that would be generally equivalent to level five (of eight) within the National Qualification Framework (September 2004 version)

Qualification Benchmark for the Foundation Degree

- A qualification benchmark describes the distinctive features of an individual qualification at a particular level within the FHEQ. It describes the qualification in terms of its particular purpose, general characteristics and generic outcomes, but it does not include subject-level detail. The Code sets out guidelines on good practice relating to the management of academic standards and quality. This Foundation Degree qualification benchmark is designed to be used as a reference point.

What are Foundation Degrees?

- Foundation Degrees integrate academic and work-based learning through close collaboration between employers and program providers. They build upon a long history of design and delivery of vocational qualifications in higher education, and are intended to equip learners with the skills and knowledge relevant to their employment, satisfying the needs of employees and employers.
- Foundation Degrees are designed to appeal to learners who wish to enter a profession, as well as those seeking continued professional development. These degrees can also provide pathways for lifelong learning and opportunity to progress to other qualifications. The qualification may be offered through flexible modes of learning, which enables learners to 'earn and learn' and which also accommodates the learning needs of different types of students.
- The design and delivery of Foundation Degrees are likely to be informed by the Framework(s) for Foundation Degrees of appropriate Sector Skills Council(s). Although many Foundation Degree programs are designed to meet local employment market needs, some Foundation Degree programs are targeted at national and international employment needs.
- Foundation Degrees provide self-standing qualifications of specific value, but are also expected to provide opportunities for further (lifelong) study, which could take a number of different forms (e.g., professional-body qualifications, higher level NVQs, etc.). In addition, Foundation Degrees normally link to at least one program that leads to a bachelor's degree with honours.

Employer Involvement

- Foundation Degrees are intended to provide students with the knowledge, understanding and skills that employers need. In order to achieve this, it is important that employers are fully involved in the design and regular review of Foundation Degree programs. It is also beneficial if employers are involved, where possible, in the delivery and assessment of the program, and in the monitoring of students—particularly within the workplace

Accessibility

- Foundation Degrees are intended to increase access and widen participation in higher education with programs of study that are designed with work-based learning as an integral component. Further colleges can play an important role in recruitment and delivery for Foundation Degree programs.

Monitoring and Review

- Employers participate in a regular review of the Foundation Degree programs they are involved in. Review procedures ensure that evaluation of the provision of all work-based learning is undertaken as part of the review, and involves feedback from all work-based learning providers. There are also opportunities for learners to comment on their work-based learning experiences, and their comments are considered in annual monitoring processes. Additional guidance is found in the section of the Code on Placement learning.

FUNDING FOR INSTITUTIONS

In England, the main government department for education is the Department for Education and Skills. Funding for teaching and research in higher education is delivered through the Higher Education Funding Council for England (HEFCE) by means of a block grant. Much of the funding for teaching and research, including that for capital, is allocated to Higher Education Institutions on a formula basis, although some funding is held centrally by HEFCE for sector-wide programs.

NATIONAL QUALITY ASSURANCE SYSTEMS

Academic standards are established and maintained by higher education institutions themselves, using an extensive and sophisticated range of shared quality assurance approaches and structures. Standards and quality in institutions are underpinned by universal use of external examiners, publication of a standard set of indicators and other reports, and by the activities of the Quality Assurance Agency (QAA). This ensures that institutions meet national expectations described in the Academic Infrastructure for quality comprising the

Framework for Higher Education Qualifications (FHEQ), subject benchmark statements and the Code of Practice, which are linked to a system of program specifications.

LINK BETWEEN PSE AND RESEARCH

- In the calendar year 2002, public sources in the U.K. (including government departments, research councils, higher education funding councils and higher education institutes (HEIs)) invested £5,454 million in R&D. Of this R&D, £3,093 million was performed by U.K. HEIs (57%).
- Private sources (including business, private non-profit enterprises and overseas sources) invested £14,107 million in 2002, of which £1,319 million in R&D was performed by HEIs (9.3%).
- In 2002, R&D performed by HEIs (HERD) accounted for 22.6% of total R&D (GERD) spending from all sources. Figures are based on the Office of National Statistics R&D survey results.

STUDENT MOBILITY

The Prime Minister's Initiative (PMI), which seeks to increase the number of overseas students at institutions across the U.K., has been under way since 1999. The initiative is coordinated by the DfES and co-financed by DfES, U.K. Trade and Investment, MOD, the Scottish, Welsh and Northern Irish administrations, and the British Council. The British Council has also developed the Education U.K. website to provide clear and practical advice for potential users and extend the U.K.'s outreach to prospective students.

STAFF MOBILITY

The Overseas Trained Teacher Programme offers overseas trained teachers the opportunity to gain qualified teacher status (QTS) while working as a teacher. Once in a teaching position in a school, the trainee follows an individual training and assessment program that leads to QTS.

THE SOCIAL DIMENSION OF THE BOLOGNA PROCESS

As of September 2006, English universities have the freedom to vary tuition fees. The government is determined to ensure that access to higher education broadens and does not narrow. Institutions will remain responsible for their own admissions policies, but the *Higher Education Act 2004* requires an access plan be drawn up by institutions that wish to increase their fees in excess of the standard fee. This plan must be approved by the Director of Fair Access to Higher Education (commonly known as the Office for Fair Access (OFFA)).

HOW HAVE COUNTRIES HARMONIZED THEIR POST-SECONDARY SYSTEMS WITH THE BOLOGNA PROCESS?

Institutions in Northern Ireland that wish to increase tuition fees above the standard fee from 2006–2007 must have an Access Agreement in place which demonstrates how participation will be increased, and which has been approved by the Department for Employment and Learning (rather than by the Access Regulator as in England).

LIFELONG LEARNING

Encouraging Lifelong Learning Paths

The U.K. Government is committed to encourage lifelong learning so that more people can fulfil their potential and operate effectively in a changing labour market, throughout their working lives. Higher education policies support efforts to maximize participation and attainment through learning.

With the government's introduction of Foundation Degrees—which offer a vocational route into higher education—those who successfully complete the degree qualification are given the opportunity to progress to honours and beyond. Short master's courses are another important means of providing and certifying continued professional development.

The government supports part-time study by making financial provisions for students in the form of a means-tested course grant and a statutory fee grant. The Sector Skills Councils are in the process of developing Sector Skills Agreements, and are specifically identifying how higher education can respond to their higher-level skill needs. These include the development of flexible progression routes into higher education from age 14 onwards, and support for continuous professional development for their existing workforce.

Recognition of Prior Learning

Guidelines on accreditation of prior learning have been drawn up by the QAA at the request of individuals and groups within the HE community, to help ensure that this important activity is conducted with a high level of security and in light of current best practices.

The 2003 White Paper “The Future of Higher Education” states that the government wants to encourage flexible ways of learning that meet the different needs of learners. The higher education sector is considering a range of possibilities for flexibility, such as the ability to vary the pace of study; to stop and start higher education at different times in students' lives; to draw on work experience and prior experiential learning; and to mix work-based learning with academic study. Whatever the learning model, it is very important to maintain the current high academic standards of U.K. higher education—and its international reputation.

CONTRIBUTION TO THE EUROPEAN DIMENSION IN HIGHER EDUCATION (EUROPEAN HIGHER EDUCATION AREA)

Joint/Double Degrees

Joint/double degrees have existed in the U.K. for a long time, since the period of the joint study programs that preceded the establishment of the Erasmus program in 1987. Such degrees are normally bilateral, and involve the mutual recognition of credits. There are double and joint degrees at the first cycle (undergraduate) and second cycle (master's) in a number of institutions. Programs are organized between individual institutions at their own initiative. There is no single model of organization for joint degree programs. Roles and responsibilities in terms of admissions and assessment of student learning are negotiated between partner organizations.

Transnational Co-operation

Since institutions are autonomous bodies, the government does not have a role in ensuring transnational co-operation. At the institutional level, a range of activity contributes to the European dimension in HE. The Erasmus program makes a major contribution to the European dimension in U.K. Higher Education; both through outgoing students and their experience, which is transmitted to their fellow students and academic staff on their return; and through incoming students, who also interact widely with staff and students.

Sweden

IMPORTANT DEVELOPMENTS

In April 2002, a working group was appointed at the Swedish Ministry of Education and Science to review certain issues related to degrees awarded by higher education institutions—and was appropriately named the Degree Review. The review was called mainly as a consequence of national developments in higher education over the past 10 years, as well as developments within the Bologna Process.

The review was primarily concerned with the degree structure (and more specifically, the level and status of the master's degree), the formulation of the scope and objectives of different degrees, and the translation of degree names into English. Another task was to address the issue of adapting the Swedish credit-point and grading-scale systems to the European Credit Transfer System (ECTS). During this process, a number of consultations with relevant stakeholders took place.

The points of departure for the Degree Review were to:

- Promote national and international mobility for students, during and after completing their studies;
- Increase the clarity and transparency of the Swedish structure for higher education;
- Strengthen confidence in the quality of Swedish higher education;
- Increase possibilities for lifelong learning; and
- Safeguard freedom and flexibility for both students and higher education institutions.

Legislation and regulation ensuing from the proposals will come into effect July 1, 2007.

In December 2002, the Swedish Government appointed an independent Commission of inquiry to conduct a review and investigation of Swedish doctoral education and the post-doctoral period.

NATIONAL QUALITY ASSURANCE SYSTEMS

The National Agency for Higher Education conducts continuous quality evaluation of all higher education, including doctoral studies. It scrutinizes quality assurance activities undertaken by the institutions themselves, and considers applications for the right to award degrees.

Sweden is a member of the European Network for Quality Assurance in Higher Education (ENQA) through

the National Agency for Higher Education. There is also a Nordic Network of Quality Assurance Agencies that is, to an increasing extent, co-operating with stakeholders, institutions and students regarding quality issues.

QUALIFICATIONS

The Degree Review group proposes that degrees within higher education be formally divided into three cycles or levels: the undergraduate, graduate and doctoral levels. Hence, institutions of higher education are to organize and label their programs and courses according to these three levels. The Degree Review group also proposes two possible master's degrees: one after completing a single year of graduate studies, and another after completion of two years.

The National Agency for Higher Education evaluates qualifications awarded to graduates of higher education programs outside Sweden. This evaluation determines to which Swedish program a foreign program corresponds.

According to the *Higher Education Act*, to obtain a doctorate degree, students must pass examinations that form part of the doctoral program and must also have their academic dissertations (doctoral theses) approved. Each doctoral thesis is orally defended in public and judged by a committee.

The balance between taught courses and thesis work varies from subject to subject, but often the courses comprise about 60 ECTS credits. To be eligible for doctoral education, a person must have basic qualifications worth at least 180 ECTS credits, as well as any special qualifications required by the faculty board.

LINKS BETWEEN HIGHER EDUCATION AND RESEARCH

According to the *Higher Education Act*, the state is the entity responsible to provide institutions of higher education with funds for research. These higher education institutions must be based on science or art and on tested experience, and research and artistic development.

The state is responsible for basic research and post-graduate education. Sweden allocates almost four percent of its gross domestic product (GDP) to research and development. Most state-funded research is carried out at higher education institutions. Since 1997, the state has allocated permanent resources for research to all universities and university colleges.

HOW HAVE COUNTRIES HARMONIZED THEIR POST-SECONDARY SYSTEMS WITH THE BOLOGNA PROCESS?

STUDENT AND STAFF MOBILITY

All higher education is provided for free. Foreign students have the same right as Swedish students to higher education without any tuition fees. It is also possible for foreign students to obtain scholarships from different Swedish support schemes.

Sweden is active in all EU programs for education and training, such as Socrates and Leonardo, Tempus, Alfa and Asia-Link. There are also several Nordic co-operation initiatives through the Nordic Council of Ministers.

The International Programme Office for Education and Training (IPK) has been assigned to increase student mobility within European Union programs for education and training. IPK has put together a group of representatives from those HEIs where Erasmus participation levels have declined. The group's task is to identify problems and find solutions to improve participation of Swedish students in the Erasmus program.

As mentioned previously, several national initiatives are in place to support mobility of students, teachers and staff. Among others, the Swedish Foundation for International Cooperation in Research and Higher Education (STINT) and the Swedish International Development Cooperation Agency (SIDA) provide scholarships for both incoming and outgoing academic staff and students.

THE SOCIAL DIMENSION OF THE BOLOGNA PROCESS

The government's policies are based on the common right of individuals to knowledge and personal development; the knowledge-based society must be open to all. This is a major task of coming welfare policies. Universities and university colleges are considered to be a force for social change. All students have equal access to higher education irrespective of their background, place of residence, gender, ethnic origin or disability. The proportion of young people entering higher education is predicted to increase. The government's target is that 50% of those born in any given year embark on university-level studies by age 25. Sweden is close to reaching that goal; in 2003, 42% enrolled for higher education studies.

DEVELOPMENTS IN LIFELONG LEARNING

Encouraging Lifelong Learning Paths

In 2001, the government launched the Swedish Net University, which coordinates and markets distance education offered by institutions.

Swedish higher education institutions have a long tradition of offering courses and programs to students with different backgrounds, students working part- or full-time, etc. The fact that the system of higher education is built on an accumulation of modules and credit points also enhances the possibilities for lifelong learning and for moving in and out of the education system.

Recognition of Prior Learning

Starting in the autumn of 2003, all higher education institutions are obliged to assess prior and experiential learning of applicants who demand such an assessment and who lack the formal qualifications (or the documentation of such qualifications).

In 2001, the government introduced a new, professionally oriented master's degree in addition to the conventional research-oriented degree. The rationale behind this was (among other things) to allow higher education institutions greater opportunities to provide continuation courses for development of competence for those in employment. This is an important element that encourages lifelong learning within higher education.

The following are recent measures undertaken by the government to facilitate lifelong learning and increase access to higher education:

- Preparatory studies aimed at applicants who lack the specific qualifications for a given program;
- A bridge between adult education/upper secondary education and HE;
- New courses;
- More vocational training programs of shorter duration;
- Encouragement of universities to actively offer attractive contract-training programs to public and private institutions/industry for staff qualification; and
- Improvement training to meet the demand of a more knowledge-based labour market/economy.

CONTRIBUTION TO THE EUROPEAN DIMENSION IN HIGHER EDUCATION

Joint/Double Degrees

The Swedish experience is that there are a number of different definitions of the term *joint degrees*. Sweden defines it by the following parameters:

- A joint degree is preferably awarded in one single document issued by the participating institutions, in accordance with national regulations.
- A clear distinction is made between joint and double degree programs, in terms of curricular objectives and organizational models, with a view to protecting the learners/users.
- Two or more institutions in two or more countries must participate.
- Programs and integrated curricula are developed or approved jointly by two or more institutions in a written bilateral or multilateral agreement.
- Learning outcomes and competencies, as well as student workload described in ECTS credits, are crucial elements to be considered.
- Joint degrees and joint study programs require student and staff/teacher mobility.

- Students' periods of study at participating institutions are of comparable length.
- Principles and general standards for quality assurance and accreditation are developed on the basis of mutual trust and general acceptance of national assurance systems.
- Periods of study and exams passed at partner institutions are recognized fully and automatically.
- Full use is made of the Diploma Supplement and ECTS.

Transnational Co-operation

Swedish universities and university colleges participate actively in European Community programs in the field of education and training. Institutions of higher education also increasingly integrate European dimensions into their educational processes. Active participation in the Bologna process, international programs, international co-operation and in joint curriculum development projects foster ideas of the European dimension.

Finland

INTRODUCTION

Initially, Finnish universities took a fairly negative view of the Bologna Declaration. Presently, the situation has changed and universities are actively participating in the creation of the European Higher Education Area. Of note, polytechnics have taken a positive view of the process from the outset.

To strengthen the position of Finnish universities in the European Higher Education Area, Finland is reforming its degree structure and devising an international strategy for its higher education system—in fact, the new two-cycle degree system was adopted by Finnish universities in August 2005. Another important initiative is to strengthen quality assurance in universities and polytechnics. The Ministry of Education does not consider it necessary to create a two-cycle degree system in polytechnics, which maintain the present system. The status of polytechnic postgraduate degrees in the higher education system as a whole is to be determined explicitly, and the extent of Finnish polytechnic degrees is to be determined on the basis of ECTS, at the same time as the assessment of university degrees.

In Finland, universities and polytechnics have adopted the Diploma Supplement—a document jointly designed by the EU, the Council of Europe and UNESCO to provide information about studies completed by students, the status of degrees and the qualification provided by specific degrees for further studies and employment. Finnish universities and polytechnics have a statutory duty to issue a Diploma Supplement to any student upon request.

Finnish higher education institutions use the ECTS system in international student mobility schemes.

Presently, degree structures are evolving in line with the Bologna Declaration, and the bachelor's–master's structure is becoming the prevalent model. However, the extent and duration of degrees in Europe vary—the most common structures being 3 + 2 years and 4 + 1 years, respectively.

In recent years, the Bologna Process focussed on the development and recognition of quality assurance systems. Most countries have adopted some form of accreditation system, which has stood in good stead when higher education systems have experienced the whirlwind of change. The Finnish Higher Education Evaluation Council has been very active in quality assurance co-operation.

IMPORTANT DEVELOPMENTS

The *Universities Act* was amended on July 30, 2004. The amendment enacted a Bologna-compatible two-tier degree structure, with an obligatory bachelor's level degree (first cycle) before master's level degree (second cycle) in all fields except medicine and dentistry. The new Act makes it possible for universities to award official degrees and degree titles in English.

The Government Decree on Polytechnics, specifying the *Polytechnics Act*, was amended in 2004. It enacted the application of ECTS-equivalent credit systems in polytechnics, and came into effect on Jan. 1, 2005.

NATIONAL QUALITY ASSURANCE SYSTEMS

The national quality assurance system of higher education consists of three elements: national higher education policy, national evaluations and quality assurance implemented at the level of individual higher education institutions.

University and polytechnic performance is monitored in annual performance negotiations with the Ministry of Education. Thus, the Ministry conducts quantitative evaluations of higher education institutions. As a part of a renewed national quality assurance system, the Ministry of Education develops methods and criteria for decisions on starting new programs, ending programs and evaluating existing programs in special cases.

The Finnish Higher Education Evaluation Council (FINHEEC) is responsible for evaluating the quality of education and other activities in higher education institutions. To respond to objectives set in the Berlin Communiqué, FINHEEC audits the quality assurance systems of universities and polytechnics.

The Academy of Finland is responsible for reviews of the national research system, discipline evaluations, peer evaluations of project proposals submitted and evaluations of research program impacts.

Higher education institutions bear the main responsibility for the quality of their activities. Universities and polytechnics are currently developing quality assurance systems, which cover all institutional activities including education, research and societal services.

QUALIFICATIONS

In Finland, emphasis is on enhancing the quality of education and degrees. The Ministry of Education has allocated extra funding to support the transfer to the new system.

Master's degrees (second cycle) grant formal eligibility for doctoral studies. Universities are responsible for admission into third-cycle studies. Doctoral studies typically take at least four years of full-time study, which include a publicly defended doctoral dissertation. Finnish universities can still confer licentiate degrees, which are optional pre-doctoral degrees that take two years of study after a master's degree.

LINK BETWEEN PSE AND RESEARCH

Approximately 59.0% of publicly funded research is being conducted at HEIs (2003). Approximately 19.5% of the total funding for research is being conducted at HEIs (2003). The GDP share of public funding for research was 1.0% (2004). The GDP share of the total funding for research was 3.5% (2003).

MOBILITY OF STUDENTS AND STAFF

The Centre for International Mobility (CIMO), operating as a state agency under the Ministry of Education, is mostly responsible for promoting international mobility according to established policy guidelines. CIMO is given extra earmarked funding to promote Finnish higher education abroad, and is allocated national funding to support EU mobility programs.

The government sets concrete goals for the internationalization of Finnish higher education. The Ministry of Education financially rewards those HEIs most active in international co-operation, especially in mobility. National top-up funding is also directed to institutions for better provision of Finnish For Foreigners and Swedish For Foreigners courses.

Different surveys and research projects concerning internationalization in general, and mobility of students in particular, are continuously being conducted. The Ministry of Education directs strategic funding to these projects.

FUNDING

Higher education institutions collect external funding freely, but they do not collect tuition fees, as all higher education leading to a degree must be free of charge for students. A formula-based public funding mechanism is in use, but the formula differs between universities and polytechnics.

THE SOCIAL DIMENSION OF THE BOLOGNA PROCESS

A regional network of higher education institutions has been created to ensure access from all geographical areas of the country. A public student finance scheme has been developed to ensure equal access to higher education regardless of a student's social or financial background. Affordable student housing is arranged by

independent foundations. All higher education leading to a degree is free of charge for students. Special needs of national linguistic minorities are taken into consideration in student selection and educational provision.

Access into higher education is wide, and from non-traditional paths: vocational secondary education provides eligibility for higher education.

DEVELOPMENTS IN LIFELONG LEARNING

Encouraging Lifelong Learning Paths

The government's National Development Plan for 2003–2008 pays special attention to developing lifelong learning opportunities. *Open University* and *Open Polytechnic* are being developed and their regional availability is being strengthened. The refinement of degree structure also facilitates adult and extended education—for example, second-cycle, post-experience polytechnic degrees. Extra ministry funding is creating virtual and open learning environments. A recent change in legislation now makes it possible for employment authorities to fund higher education for the unemployed.

Recognition of Prior Learning

University and polytechnic legislation makes it possible for higher education institutions to admit students without formal qualifications, upon alternate verification of a student's abilities. The Ministry of Education has appointed a working group to prepare common guidelines for recognition of prior learning.

CONTRIBUTION TO THE EUROPEAN DIMENSION IN HIGHER EDUCATION (EUROPEAN HIGHER EDUCATION AREA)

Joint/Double Degrees

No fully reliable data exist, but based on information from the Ministry of Education, the Centre for International Mobility (CIMO) and the Finnish ENIC/NARIC, almost all higher education institutions have developed or plan to develop joint/double degree programs. Finnish HEIs have also actively—and successfully—applied the *Erasmus Mundus* program.

Transnational Co-operation

The Centre for International Mobility (CIMO) is responsible for various transnational projects in higher education. A Finnish-Russian Cross-Border University (CBU) project has been launched by the Ministry of Education, and a number of Finnish and Russian HEIs are taking part to establish and expand joint master's programs. Finnish partners are involved with three *Erasmus Mundus* marketing projects. All HEIs are, of course, involved in various international networks.

Germany

INTRODUCTION

The most striking outcome of the Bologna reform is the adaptation of study courses to the two-cycle bachelor's/master's study system. With the 5th Amendment to the *Framework Act for Higher Education* in 2002, Germany had already fulfilled the demands of the 2003 Berlin Communiqué, namely to begin the introduction of the two-cycle study system by 2005 and introduce bachelor's and master's courses as standard degree courses at universities. The German states implemented this federal legal requirement by incorporating bachelor's and master's study courses in their respective legislation on higher education. In 2003, the Science Ministers of the states approved a fundamental decision on education policy in favour of the nationwide introduction of the two-cycle system by 2010.

BACHELOR'S AND MASTER'S

The bachelor's/master's system offers students new opportunities for a combination of attractive qualifications and a flexible mixture of learning, vocational activities and individual life planning. The introduction of the bachelor's system marks the establishment of a degree program which qualifies graduates for a profession after three to four years, making it possible to enter a career earlier than ever before. First and foremost, however, this study system is internationally compatible and forms the basis for increased worldwide mobility during study.

Nevertheless, the introduction of the two-cycle study system does not represent a break with academic tradition. The high quality of academic training in Germany is maintained within the two-cycle study and degree structure. It is not sufficient, however, to simply rename existing study courses; programs must be reformed and curricula consolidated and better structured. By doing so, study periods in Germany—which are long by international comparison—can be shortened and the average age of graduates can be reduced, along with high rate of students who discontinue their studies.

The 2,934 bachelor's and master's courses currently offered (summer semester 2005) account for about 27% of the overall range of studies available in Germany. According to BMBF surveys (Federal Ministry of Education and Research), more than half of the bachelor's and master's study courses in Germany have been newly developed; the others have resulted from reform of existing study courses in both content and structure. The new study courses are offered in modules. More than 70% of these courses include a credit point system and accompanying examinations.

The German Rectors' Conference set up a Bologna Competence Centre to support universities in introducing the new study system. The project provides experts who assist institutions of higher education with the concrete implementation of Bologna objectives, from both organizational and conceptual perspectives. Over the next two and a half years, the BMBF will provide more than €4.4 million to the German Rectors' Conference project.

IMPROVING THE PROCEDURE FOR RECOGNIZING QUALIFICATIONS

The introduction of the European Credit Transfer System (ECTS) has significantly improved the flexibility and transparency of study courses. ECTS is a purely quantitative measure of a student's overall workload from study modules and examinations necessary to successfully complete his or her course of study. Between 2001 and 2004, the federal government made a total of €3.824 million available within the framework of a state federation pilot program to support institutions of higher education in introducing ECTS.

Since 2005, all students receive the Diploma Supplement free of charge and without having to make a special application. The Diploma Supplement contains standard information on descriptions of university degrees and the respective qualifications. The Diploma Supplement is appended to official documents that outline university qualifications.

QUALITY ASSURANCE: EVALUATION AND ACCREDITATION

Evaluation was incorporated as a general task of HEIs in the *Federal Framework Act for Higher Education* in 1998, and has since been included in all states' Higher Education Laws. Evaluations highlight the strengths and weaknesses of an institution and/or its study programs. Systematic and regular evaluations contribute toward improving both the quality of teaching and research at institutions of higher education, as well as study and working conditions.

In the meantime, a number of regional evaluation agencies and inter-regional networks have been established in Germany to conduct teaching evaluations according to international standards.

In 1998, the Federal Government, together with the states, brought Project Q into being at the German Rectors' Conference. Among other things, the project ensures further development of different quality assurance procedures and coordinates the German position in the European framework. The federal government makes

more than half a million euro available annually up to 2006, so that Project Q can continue.

Accreditation examines whether universities have observed minimum standards and fulfilled course structure requirements when designing their study courses. This provides students and employers with reliable points of reference to evaluate the quality of study programs and higher education institutions. Following a decision by the Standing Conference of State Ministers of Education and Cultural Affairs, a National Accreditation Council was established to implement comparable quality standards. The Accreditation Council accredits and supervises agencies that conduct course accreditation themselves.

There is currently considerable backlog in accreditation of new study courses, as higher education institutions lack the capacity to file applications and accreditation agencies lack the capacity to process them. The result is that so far, only 24.5% of new study courses have been accredited. In view of the states' responsibilities to fund universities, the federal government can do no more than provide assistance in this area.

NATIONAL QUALIFICATIONS FRAMEWORK

A working group made up of representatives from the German Rectors' Conference, the states and the BMBF has drawn up a National Qualifications Framework for the higher education area which takes into account the interfaces between vocational training and lifelong learning. This group sets out to define qualifications with regard to workload, standards, learning results, competencies and profiles. Apart from increasing transparency and comparability of training courses, it establishes points of reference and targets for the design, evaluation and accreditation of study courses, thereby supporting quality assurance at institutions of higher education. In drafting the National Qualifications Framework, the working group attaches particular value to making it compatible with the overarching Qualifications Framework of the European Higher Education Area approved at the Bergen Conference, which essentially provides for a three-cycle structure (bachelor's, master's and doctorate).

MOBILITY

With the *Training Assistance Reform Act*, the federal government has improved opportunities for studies abroad and further extended the portability of training assistance demanded in the Berlin Communiqué—and thus enhanced the mobility of students and researchers in Europe. Among other things, this means that after a

two-semester orientation phase in Germany, students can continue—or even complete—their studies in another EU country and continue to receive Federal Training Assistance abroad. There has been an enormous increase in the number of trainees and students abroad since the introduction of the reform. In 2003 a total of 15,832 trainees and students received assistance toward training and studies abroad. This is 16% higher than in 2002, and 69.1% greater than in 2000. Approximately 14% of German students currently spend part of their period of study abroad. The aim is to increase this rate to over 20%.

DOCTORAL TRAINING

In September 2003, European Education Ministers introduced doctoral training as the so-called third cycle of the Bologna Process. The aim behind this decision was to interlink the European Higher Education Area and the European Research Area. As the right to confer doctorates lies solely in the hands of universities, the BMBF (Federal Ministry of Education and Research) attaches particular importance to the involvement of institutions of higher education and their representations. The Bologna Follow-up Group shares this view. It has therefore asked the European University Association and other interested parties to draft a report, under the direction of the Follow-up Group, on the further development of basic principles for doctoral programs. At the same time, it has emphasized the importance of avoiding overregulation of doctoral training.

In February 2005, the BMBF, together with the Austrian Ministry of Education, Science and Culture and the European University Association organized an international conference in Salzburg on the topic of doctoral training.

LIFELONG LEARNING

The federal government and the states approved a joint strategy for Lifelong Learning in the Federal Republic of Germany at the meeting of the Federation Commission for Educational Planning and Research Promotion on July 5, 2004. This consensus on lifelong learning demonstrates Germany's willingness and ability to make its education system fit for the future and contribute toward ensuring that Europe becomes one of the world's most competitive knowledge societies.

France

IMPORTANT DEVELOPMENTS

Three-quarters of the institutions under the Ministry of National Education, Higher Education and Research (MENESR) adopted the scheme of Licence-Master's-Doctorate, and all universities are to implement this model in the academic year 2006, or by 2007 at the latest.

France has begun work to assess three top priorities:

- The reorganization of doctoral studies, in response to a Jan. 6, 2005 decree that changed international co-supervision of theses;
- The redefinition of methods to evaluate and/or accredit the quality of institutions, study and research programs, and teacher-researchers (*enseignants chercheurs*) and researchers, taking into account both the historic role of the State in French and European developments;
- The elucidation of France's higher education system by strengthening relationships between universities, *grandes écoles* and research institutions, to ensure and ease international assessment of France's national system.

NATIONAL QUALITY ASSURANCE SYSTEMS

As far as quality assurance is concerned, three aspects can be distinguished:

- evaluation of institutions;
- evaluation of curricula, degrees and research programs; and
- evaluation of researchers and teacher-researchers.

Evaluation of institutions is essentially performed by the National Evaluation Council, an independent body that produces publicly available institutional reports that analyze each institution's strategy and results.

Evaluation of research programs implemented by higher education institutions is conducted either by:

- Research organizations (CNRS, INSERM, INRA, etc.), when a program is under the authority of a joint research unit (which involves both a higher education institution and a research institution); or
- A scientific, technical and educational Mission (set up at the national level in 2002), when the research unit is under the sole authority of a higher education institution.

The evaluation of teacher-researchers and researchers is vital to improve the quality of any higher education and research scheme. In France, this is carried out by an independent body: the National Universities Council for university teachers; and by research institutions' evaluation committees for researchers.

The French higher education and research system has many quality assurance bodies that echo the diversity of evaluation scopes, types of institutions, and education and research fields. In current considerations about the making of a research law, improved organization of the overall scheme is required, to make things easier and more adapted to an international context.

Efforts made by France within the framework of the Bologna Process aim to limit drawbacks from the the past structure—universities, *grandes écoles*, and research institutions—in order to bring the French system closer to main international references. From this point of view, quality assurance is a powerful pull factor for action, since no institution can put aside a scheme based on a quality assessed by legitimate bodies and external to the institutions themselves.

QUALIFICATIONS

France's doctorate is designed according to international standards. It recognizes successful training through research, of an average duration of three to four years, which is concluded by a thesis defence. Doctorates are awarded by universities, and in some *grandes écoles*, research activities are substantially developed. Doctoral studies are ruled by the decree of April 25, 2002, which modernizes the system and fully integrates it into the Licences-Master's-Doctorates scheme related to the process of European convergence.

A decree of Jan. 6, 2005 adapted the system of international co-supervision of thesis, allowing a French university to make an agreement with a foreign university to train a doctoral student. This has major implications, in that it allows French universities to depart from French regulation whenever applicable regulations in both countries are incompatible, which therefore fully trusts the partner country's rules to guarantee the quality of education.

LINKS BETWEEN HIGHER EDUCATION AND RESEARCH

There is a very close link between higher education and research in France. More specifically, the master's degree, whether professionally or research-oriented, is accredited only if it is managed by teaching teams assessed on the basis of the scientific results of their members—who are members themselves of recognized research teams or labs.

Doctoral programs are developed within universities and linked to labs, teacher-researchers and researchers involved in teaching doctoral students and taking an active part into the doctoral field under consideration.

In France, 60% of public research is performed by universities, as the link between universities and research institutions strengthens through the generalization of joint research units. Research and higher education are also clearly linked by the participation of doctoral graduates or doctoral students, based on specific contracts, in teaching at licence and master's levels.

MOBILITY OF STUDENTS AND STAFF

The Prime Minister's plan to make France more attractive to students established a National Council for the development of international student mobility. The process raised sharp awareness of the difficulty of the task which triggered a number of incentive measures aimed at removing mobility obstacles.

France has many incentive schemes to encourage mobility. These schemes are supported by grants and public funds: notably Erasmus top-up grants or mobility grants of the MENESR—provided to students on the basis of social criteria—or grants financed by local authorities.

THE SOCIAL DIMENSION OF THE BOLOGNA PROCESS

In France, any baccalauréat holder has the right to access higher education with low tuition fees and is automatically admitted to university. (The baccalauréat is a national degree awarded after secondary education). Yet, because of the duration of higher education training, it is difficult for young people from modest social backgrounds to access without financial support.

Grants are awarded according to social criteria—financial support is awarded according to a family's income. Students who receive such grants are exempt from tuition fees and from social security fees. Social grants are awarded in France for public and private training courses and for training in Council of Europe countries. This is provided that the training courses fall under the authority of a ministry in charge of higher education and end with the award of an official degree. They can be awarded to foreign students under specific conditions. In 2002, about 95% of public grants were social grants. They were awarded to 30% of French students, each grant amounting to between €1,296 and €3,501.

Since the 2001 academic year, students who have held social grants have also benefitted from mobility grants, which improve their access to training in European and other countries. In 2003–2004, 5,000 grants with a value of €389 per month were awarded.

In order to meet the needs of students not qualified for grants under this framework, France has devised a system of study allowances, which takes into account such factors as family breakdown, real family independence, and back-to-study situations after the age of 26.

Grants are also awarded on the basis of university achievement. These criteria grants concern postgraduate students at the master's level. In 2002, 12,600 students benefitted from grants between €3,456 and €4,077 per year. Generous merit-based grants make it possible to encourage brilliant baccalauréat students—those with a *Very Good* award—from modest backgrounds to pursue higher education. France awarded 600 grants of €6,102 each in 2002.

For French students who do not qualify for social criteria grants, interest-free loans are available and can be paid back 10 years after the end of students' higher education. In 2002, about 2,700 students benefitted from such loans.

In addition, a university solidarity fund (FSU) makes it possible to cope with urgent situations for the most disadvantaged students. In 2002, over €1.3 billion were spent on grants for higher education, 27% more than in 1997.

HOW HAVE COUNTRIES HARMONIZED THEIR POST-SECONDARY SYSTEMS WITH THE BOLOGNA PROCESS?

DEVELOPMENTS IN LIFELONG LEARNING

Encouraging Lifelong Learning Paths

As part of its strategy to promote lifelong learning, France recognizes that students' prior degrees and periods of study should be considered as students work toward new degrees. A 2002 reform formalized this tradition by taking into account studies done abroad in public or private training institutions or organizations—or learning from professional experience in France or abroad—when students enrol in higher education training courses.

This strategy does not provide students with an automatic right to receive a degree, but rather recognizes an individual's right to use his or her lifelong experience and learning toward a degree. Increasingly, the learning paths developed by various European institutions have made the concept of an easier and more flexible system for prior learning recognition a necessity.

The Licence-Master is Doctorate (LMD) scheme is set up to enable institutions to offer students integrated training, which develops modular learning paths (ECTS). LMD also welcomes young students and adults into a system of unbroken training as they work toward higher education degrees.

This model makes it possible to integrate two methods of learning: attendance learning, in which students are physically present during class; and distance learning, which relies on information and communication technologies for students to acquire knowledge. In this way, the learning paths are optimized in two ways:

- According to qualification objectives sought after by adults;
- In terms of time management, by taking into account and recognizing prior learning.

RECOGNITION OF PRIOR LEARNING

Recognition of prior vocational skills was enshrined in a series of decrees made in 1985 and in a 1992 law, which made additional provisions specific to higher education. A 2002 law for social modernization and a 2002 decree established the right for students to do two things: ask for recognition of prior vocational skills and widen this principle to include all certificates and degrees; and provide arrangements for some aspects of the procedure. The point is, the 2002 law makes it possible for an institution to award a *bona fide* degree with recognition of prior learning.

Recognition of prior learning is made by expert juries, which base their findings on information provided by the candidate and an interview of the candidate.

CONTRIBUTION TO THE EUROPEAN DIMENSION IN HIGHER EDUCATION

Joint/Double Degrees

Since the 2005 decree, it has become much easier for institutions to award joint doctorate degrees. All obstacles have been removed.

A dialogue has just begun in France to widen this approach to other levels: licence (L) and master's (M). The idea is that a French institution entitled to award a degree has the right to make a partnership with a foreign institution qualified to award the same degree at the same level, in the same field. In this manner, institutions would be able to set up joint study programs and award joint degrees without any previous or supplementary State licence.

Transnational Co-operation

The core idea is designed to encourage the establishment of integrated training courses in which a student spends a significant portion of time learning at a partner institution—with the understanding that a resulting degree will be recognized by both institutions.

Croatia

INTRODUCTION

Croatian universities have begun preparations to harmonize their post-secondary education standards with Bologna Process requirements, and individual faculties have already significantly modified their curricula.

Through discussion, members of the academic community can exchange experiences, report on progress of the implementation of the Bologna Process and focus on issues that need further dialogue. The government is aware of the importance of co-operation with members of the Croatian Rectors' Conference, who can contribute to the success of deliberations and who can suggest further discussion about current issues. The government has invited representatives of the Independent Union of Research and Higher Education Employees of Croatia to join and contribute to the discussions. Organizers expect at least one vice-rector from each Croatian university to join and actively participate in every meeting, and that deans and/or vice-deans of higher education institutions will join and actively participate in discussions not only relating to their fields of activity, but in all discussions.

TEMPUS PROGRAM: MOVING AHEAD WITH THE BOLOGNA PROCESS IN CROATIA

The main features of the Tempus program are:

- The development of Institutional Action Plans for the implementation of the Bologna Declaration and management of the process throughout Croatian institutions.
- A comprehensive skills-development program for administrative staff in International Relations Offices.
- A large-scale program to disseminate information through the production of awareness-building material and leaflets, development of a website, organization of widespread information meetings at all participating Croatian universities, and establishment of a network of academic staff in each faculty and department to facilitate the exchange of information and best practices.
- To learn best practices from EU partners in all aspects of implementation and management of the Bologna Process.
- To train and develop academic and administrative staff at all levels.
- To disseminate knowledge and best practices through information leaflets and websites.
- To help Croatian universities integrate into the European Higher Education Area.

Expected outcomes of the project are:

- Strategic, institutional action plans to implement and manage the Bologna Process.
- Well-trained administrative and academic staff, who are well-informed about all aspects of the Bologna Process and able to manage this process at the university level.
- Wide-scale dissemination of information, results and best practices.
- Quality control and monitoring.
- Management of the project.

IMPORTANT DEVELOPMENTS

In July 2003, the Croatian Parliament passed *The Act on Scientific Activity and Higher Education*, to which a number of amendments were added in July and November 2004. The present Act and its amendments form the legal framework and preconditions for the following changes in the system of higher education in the Republic of Croatia:

- The Act promotes European standards and is compatible with the Bologna Declaration.
- The Act is followed by sub-legislation aimed to facilitate implementation of the Bologna Process in institutions of higher education in Croatia.
- The Act guarantees university autonomy.
- A new funding system for higher education is introduced as of Jan. 1, 2006, which enables the universities to function as integrated institutions.

NATIONAL QUALITY ASSURANCE SYSTEMS

The Agency for Science and Higher Education is a specialized institution established by the Government of the Republic of Croatia. It performs professional services related to the assessment of scientific activity in higher education, as well as recognition of diplomas and qualifications.

The agency performs professional services in the evaluation of:

- Institutions of higher education;
- Study programs at institutions of higher education;
- Quality assurance and control systems at higher education institutions and certification of study programs; and
- Data related to scientific activity in higher education at the national level.

HOW HAVE COUNTRIES HARMONIZED THEIR POST-SECONDARY SYSTEMS WITH THE BOLOGNA PROCESS?

The agency is responsible for setting up:

- The National Network for Higher Education Quality Assurance, which forms part of the European Quality Assurance Network; and
- The National Information Centre and the national network of offices for the recognition of foreign diplomas and qualifications, which form part of the European Network of Information Centres (ENIC).

The agency uses the services of domestic and foreign experts for particular areas of scientific activity and higher education. The agency regularly reports to the National Council for Higher Education on activities and results.

According to the Act, the Ministry of Science, Education and Sport, The National Council for Higher Education, the Agency for Science and Higher Education, the Croatian Rectors' Conference and student associations are the bodies responsible for accreditation and quality assurance procedures for higher education institutions in Croatia.

QUALIFICATIONS

In accordance with the Act, two-cycle and three-cycle study programs will be introduced in the academic year 2005–2006. Consequently, all higher education institutions in Croatia are expected to adapt their study programs to the new system.

Under the new system, undergraduate courses will last three to four years and graduate courses one to two years. The introduction of the two-cycle system is obligatory for all institutions of higher education in Croatia, with the exception of some courses in which the two cycles will form a whole.

The *Act on Recognition of Foreign Education Qualifications* came into force on July 1, 2004. Recognition procedures are part of the responsibilities of the Agency for Science and Higher Education.

Under the new Act, there are two types of postgraduate studies:

- Doctoral studies that last three years which, upon completion of the course and research involved, lead to a doctoral dissertation and the awarding of a PhD.
- Specialist studies that last for one to two years, which lead to the degree of *specialist* in a particular field of study.

At this stage of implementation of the Bologna process, only the first two cycles have been fully defined. Therefore, no conditions for access or balance between courses have been defined.

LINKS BETWEEN HIGHER EDUCATION AND RESEARCH

Research is an activity of all universities; 71% of total public funds for research in Croatia is allocated to institutions of higher education.

Accreditation for postgraduate programs is given only if the institution has adequate research facilities and, in particular, if its faculty includes researchers qualified to act as mentors on doctoral theses.

Croatian universities are both teaching and research institutions. The Act includes a provision that stipulates universities may organize second-cycle and postgraduate courses in co-operation with research institutes. Croatia has more than 20 such institutes, and the leading one possesses 25% of the national research capacity, mainly in natural and biomedical sciences.

STUDENT MOBILITY

Croatia has not yet joined European student mobility programs. At present, student and teacher mobility is based on bilateral, intergovernmental and interuniversity co-operation agreements. International co-operation offices at Croatian universities are preparing programs for European student mobility.

THE SOCIAL DIMENSION OF THE BOLOGNA PROCESS

Access to higher education is guaranteed to all citizens, providing they meet admission requirements. There are three categories of students in Croatia: full-time students who pay no tuition fee (having passed the admission exam), full-time students who pay a tuition fee, and part-time students.

The university admission procedure starts with a public competition advertised by the university, polytechnic or the higher education college in which the institution specifies the conditions for admission, the number of places, the procedure, information about documents to be submitted and the deadline for application.

Universities, polytechnics and colleges of higher education adopt such admission procedures to ensure equality of all applicants regardless of race, colour, gender, language, religious, political or other affiliation, ethnic or social origin, property, birth, social status, disability, sexual orientation and age. Institutions of higher education determine the criteria for admission and the granting of places (prior education grades, type of secondary school, entrance or admission test score, special knowledge, skill or ability, etc.).

DEVELOPMENTS IN LIFELONG LEARNING

Encouraging Lifelong Learning Paths

The Act provides the legal framework for the introduction of lifelong learning in Croatian higher education institutions. Institutions may organize training courses in line with the concept of lifelong education, learning and professional training. The Republic of Croatia has designed a national program of lifelong learning, however, no special financing has been provided on the national level to encourage further development of lifelong learning in higher education.

Recognition of Prior Learning

The Act stipulates that after a successfully completed period of further training within lifelong learning programs, students obtain special certificates and ECTS credits.

CONTRIBUTION TO THE DIMENSION IN HIGHER EDUCATION

Joint/Double Degrees

Joint degree studies do not have a tradition in Croatian higher education. However, recently a certain number of new study programs leading to joint degrees have been initiated or are being prepared.

Transnational Co-operation

Initiatives:

- Joint program in cognitive neuroscience (doctoral studies);
- Joint activity in post-graduate studies in European Integration Law.

The Netherlands

IMPORTANT DEVELOPMENTS

The 2002–2003 introduction of the two-cycle (bachelor's/master's) structure involving 60 ECTS credits per year is monitored regularly, and details are adjusted if required. From the academic year of 2002–2003 onward, over 80% of all higher education programs are now offered in a two-cycle structure (apart from the third cycle [PhD]).

By the end of 2004, an additional article was included in the law, which obliges HEIs to present all students with a Diploma Supplement (automatically and free of charge) written in Dutch or English.

By the end of 2004, a decision was made to investigate the usefulness of (re)introducing short-cycle higher education.

A new funding scheme for higher education (for both institutions and students) was to be introduced in 2006, taking into account joint programs and joint degrees and mobility of students.

Recently, work has begun on a new law for higher education to be introduced in 2007. This legislation considers the possibilities of offering joint programs and joint degrees.

The National Accreditation Organisation (NAO) has been transformed into the supranational Dutch/Flemish organization NVAO. Together with other accrediting agencies in Europe, the NVAO forms the European Consortium for Accreditation (ECA). ECA aims for the mutual recognition of accreditation decisions by the end of 2007.

NATIONAL QUALITY ASSURANCE SYSTEMS

To guarantee the quality assurance of the bachelor's and master's programs, the Netherlands Accreditation Organisation (NAO) assesses courses at colleges and universities. A treaty between the Netherlands and the Flemish Community of Belgium established the NAO as a supranational organization in 2003. By the end of 2004, the treaty was ratified, and since then the organization has been known as the Nederlands-Vlaamse Accreditatie Organisatie in oprichting (NVAO, or Dutch-Flemish Accrediting Organisation).

At the same time, the task of overseeing the external evaluation of study programs was transferred from the Inspectorate (responsible for the education system at large) to the newly established NVAO in 2003. Its board members are appointed by the shared governments of the Netherlands and the Flemish Community of Belgium. The NVAO accredits programs if an external, independent evaluation is conducted according to defined protocol, and if the assessment is positive.

Universities and institutions for higher professional education have a great deal of freedom to organize their own systems of quality assurance. All universities are involved in quality assurance (consisting of external and internal evaluations) of their own education and research.

It is mandatory for students to be members of the education committees for each program. Their involvement in internal evaluation is at the institution's discretion.

The Quality Assurance Netherlands Universities and the Netherlands Quality Agency are, along with the Inspectorate and the NVAO, members of the European Association for Quality Assurance in Higher Education (ENQA).

QUALIFICATIONS

Higher education comprises higher professional education (HBO) and university education (WO), which have been governed by the *Higher Education and Research Act* since 1993. The Act was amended in 2002, 2003 and 2004.

The bachelor's/master's structure came into effect following an amendment to the *Higher Education Act* in 2002, which led to a degree system with three main cycles. The universities converted most of their traditional single-cycle courses into bachelor's and master's courses in the 2002–2003 academic year. The remainder were converted in 2003–2004. Some courses still exist in the old format, but will be phased out. Incidentally, programs in medicine, pharmacy and veterinary science are still organized in a long cycle. Courses at institutions for professional education were converted into bachelor's programs in 2002. The Minister of Education can authorize these institutions to offer master's courses as the need arises, and has done so in the area of health care.

Doctoral programs can be accessed after the completion of a master's degree or equivalent title. Doctoral or PhD students conduct scholarly or scientific research, generally leading to a thesis or dissertation. The doctorate program lasts at least four years. This type of qualification may be obtained from a university as well as from the Open University. Research schools are national and international centres for high-quality research in a particular field, or in a multidisciplinary context. They offer research posts to talented research assistants and provide a guaranteed level of supervision and tuition for doctoral studies. Candidates are expected to obtain a doctorate at the end of their training.

The 2002 amendment to the *Higher Education Act* introduced a Dutch credit system similar to ECTS (with 60 study points a year), which replaces the former 42-

credit system. This mandatory ECTS-credit system for accumulation and transfer of credits has been implemented since the 2002–2003 academic year. The 2002 amendment defined 60 credits by law as a workload of 1,680 hours. The use of the Diploma Supplement has been mandatory since March 2005. Many institutions have introduced or are introducing the Diploma Supplement, whose use is being promoted extensively by student organizations, the government and the NUFFIC (as the Dutch ENIC/NARIC). Prior to March 2005, the Diploma Supplement was issued on request, free of charge, in Dutch or English. Since then, it has been issued automatically to all students.

LINKS BETWEEN HIGHER EDUCATION AND RESEARCH

Professors at research universities have dual tasks: conducting research and teaching. The involvement of well-known research professors in undergraduate and graduate teaching varies according to the strategies of institutions.

In 2004, a specific type of accredited *research master* programs (120 ECTS credits) began at research universities. These programs are more specifically geared to a PhD third-cycle phase and a career in research.

At universities of professional education, besides regular teaching staff, a limited number of lecturers are employed—professors with the specific task of combining teaching with applied research in collaboration with industrial activities in the region.

Forty-one percent of R&D expenditures is spent in the public higher education and research sector (key figures for 1999–2003, on the basis of the national statistical bureau CBS). According to OECD data, R&D expenditures in the semi-public sector financed by industry is 12.1%.

National statistics show that the external income of universities in 2001 consisted of €593 million, of which 26% was commissioned by government, 26% by industry, 12% funded internationally and 35% by non-profit organizations.

STUDENT MOBILITY

For both incoming and outgoing mobility in 2004, a restructuring of national mobility programs has been prepared, with the goal of increasing the transparency of the access process and possibilities, and decreasing the administrative procedures. Restructuring changes have been implemented since 2005.

The following are special measures to improve mobility:

- During the EU presidency, the Ministry studied the portability of loans and grants in Europe, which resulted in the instalment of an EU committee to study the portability of student grants and loans at the EU level.

No recent research data are available on teachers and staff mobility. There are indications that mobility is hampered by pension arrangements, the labour market and the situation that mobility of a staff member often also includes mobility of his or her partner with gainful employment.

THE SOCIAL DIMENSION OF THE BOLOGNA PROCESS

Equality of access is warranted by:

- Access on the basis of successful completion of secondary education; and
- A study finance (student funding) scheme for all students enrolled in accredited programs.

The study finance scheme consists of a basic grant for every student enrolled in an accredited program. This basic grant is then topped up by additional funding if the student's family income is below a certain level. In addition, all students can obtain a state loan. The interest rate is at the same low level as mortgage loans. Grants must be refunded if the student drops out.

A new funding scheme for the publicly funded institutes of HE was proposed for 2006. One of the key elements is the introduction of so-called learning rights of students. Students enrolled in accredited programs are awarded learning rights, which entitle universities to several years of government funding. During this period, students pay a fixed tuition fee. If students have used up their learning rights prior to graduation, institutions may request a higher tuition fee from the students. This new principle for funding institutions is expected to justly finance actual teaching efforts (for instance, for mobile students who do not study at an institute for a full term, or for students whose prior learning is assessed and acknowledged). It is also expected to encourage students to complete their studies in time.

To maintain accessibility of higher education, students can obtain state loans to compensate for their tuition fees. State loans (or the grant received in case of dropout) usually must be refunded; in instances where a graduate/ex-student's income is below a certain level, no repayment is required. The obligation to repay the loan starts two years after completion of study (graduated or not), and lasts a maximum of 15 years.

HOW HAVE COUNTRIES HARMONIZED THEIR POST-SECONDARY SYSTEMS WITH THE BOLOGNA PROCESS?

Attention has been paid to assessment of prior learning, and areas such as the transfer from post-secondary vocational education to higher professional education will be improved.

DEVELOPMENTS IN LIFELONG LEARNING

Encouraging Lifelong Learning Paths

Special funding facilitates co-operation between the Open University and the regular institutions of HE to stimulate distance learning and e-learning.

Experiments start with the (re)introduction of short-cycle higher education, which is expected to be attractive for employees and small and medium-enterprise employers.

The new university funding approach based on learning rights is expected to transform the higher education system from one driven by supply to one driven strongly by demand.

Recognition of Prior Learning

From 2001 to 2004, the ministry financed a national knowledge centre on assessment of prior learning. The task of the centre was the development and distribution of knowledge on prior learning assessment in professional sectors, secondary education and HE. This knowledge centre continued to operate in 2005 with the tasks of:

- Focussing on parts of the labour market in which assessment of prior learning is not yet known;
- Developing quality assurance and control of assessment procedures; and
- Highlighting limitations in current legislation (if any).

The ministry considers quality assurance of prior learning assessment important. New legislation proposes to assign the Examination Boards the legal task of overseeing assessment procedures, including prior learning. Further, it is envisaged that institutions for HE need support to develop these procedures.

CONTRIBUTION TO THE EUROPEAN DIMENSION IN HIGHER EDUCATION

Joint/Double Degrees

There are many examples of existing joint programs that lead to double degrees.

- Many joint programs are set up in the context of *Erasmus-Socrates* and *Erasmus Mundus* programs.
- Co-operations are set up on the basis of bilateral agreements.

Transnational Co-operation

The government promotes and facilitates transnational co-operation. This is evidenced by:

- A treaty between the Netherlands and Flanders, which made the accreditation organization into a transnational body.
- Cross-border co-operation in higher education and research facilitated with Germany, Flanders and France.
- A joint quality initiative—an informal network of quality assurance agencies, similar to that in the Netherlands and Flanders—which facilitates co-operation with a wider range of countries to further internationalization of quality assurance, be it accreditation or otherwise.

Norway

IMPORTANT DEVELOPMENTS

As noted in Norway's 2003 report, most of the elements of the Bologna Process up to the Berlin Communiqué have been implemented through the Quality Reform.

The Quality Reform was implemented at all higher education institutions in Norway in the autumn of 2003. Central to the reform is a new degree structure with the bachelor's, master's and PhD degrees, which follows:

- The three-year (bachelor's), two-year (master's), three-year (PhD) model;
- The establishment of a quality assurance agency;
- The compulsory use of the Diploma Supplement;
- The introduction of credits based on the ECTS model;
- Closer counselling of students;
- Change from a final-exam-oriented system to one oriented toward teaching and learning;
- Increased institutional autonomy;
- New forms of assessment; and
- Increased internationalization.

NATIONAL QUALITY ASSURANCE SYSTEMS

The primary responsibility for quality assurance rests with the higher education institutions themselves. The Norwegian Agency for Quality Assurance in Education, NOKUT, is an independent government body established to monitor and develop the quality of higher education in Norway through evaluation, accreditation and recognition of quality assurance systems, institutions and study programs. This division of responsibilities is defined in the *Act on Universities and University Colleges*, and is also continued in the new bill presented to the Norwegian Legislature. NOKUT has the following responsibilities:

- To assess the quality assurance systems of higher education institutions based on requirements laid down in the Ministry of Education's Regulation governing NOKUT, and supplementary criteria stipulated by NOKUT itself. NOKUT, through quality audits carried out in regular cycles, evaluates and passes judgement on all accredited institutions' internal quality assurance systems. In addition to serving as a control mechanism, the audits are conducted in a manner beneficiary to quality development.
- To accredit private institutions.
- To accredit state institutions applying for a change of status.
- To accredit new study programs at institutions that require approval. (These decisions cannot be modified by any other authority.)

- To review accreditations already awarded. Any institution can have accreditations revoked or suspended—for the entire institution or individual programs—following a negative assessment. Evaluations are conducted by experts appointed by NOKUT.
- To carry out other types of evaluations to investigate, assess and develop the quality of higher education in Norway. The Ministry may instruct NOKUT to undertake such evaluations.
- To recognize foreign education/diplomas.

QUALIFICATIONS

The Norwegian system offers two parallel paths to a doctoral (PhD) degree:

- Through organized doctoral programs: organized doctoral studies require a master's degree or equivalent. The studies are based on a three-year norm.
- Through research: a PhD is awarded on the basis of a relatively long record of research and publication. These so-called *individual* degrees accounted for 12% of doctorates in 2003.

LINKS BETWEEN HIGHER EDUCATION AND RESEARCH

Higher education institutions have a tripartite mandate. First, they provide higher education on the basis of the foremost scientific research, artistic development and empirical knowledge. Second, they engage in research and academic or artistic development, and third, they disseminate knowledge and research results to society at large. The higher education sector, thus, plays a central role in the Norwegian research system.

Nine out of 10 researchers who obtain a PhD are trained in the higher education sector. This sector maintains the knowledge base for research in Norway and collaborates extensively with researchers from other sectors (e.g., research institutes, industry). Research in the higher education sector is directed mainly toward basic research, although higher education institutions also have a clear mandate to conduct applied research in collaboration with industry, and university colleges have a mandate in regional development. Most R&D in humanities and social sciences is carried out in this sector. The majority of academic staff in higher education institutions is obliged to perform research *and* teach, but the balance between the two tasks vary between institutions, and among individual staff members at the same institution.

HOW HAVE COUNTRIES HARMONIZED THEIR POST-SECONDARY SYSTEMS WITH THE BOLOGNA PROCESS?

In 2001, 56% of public investment in R&D was allocated to the higher education sector, 35% was allocated to public or private research institutes—which mostly conduct applied research—while 9% was allocated to industry. There are two main sources for R&D funding in the higher education sector: general university funds and external sources. General funds account for about 80% of R&D funding in this sector. The Research Council of Norway is the most important external source for R&D funding.

STUDENT AND STAFF MOBILITY

All Norwegian students have a statutory right to financial assistance through the State Educational Loan Fund; they can receive financial assistance regardless of their parents' income. They may receive approximately €9,800 a year in financial assistance, of which 40% can be given as an educational grant but is dependent upon completion of exams. The students are entitled to take this amount abroad for all study programs—both exchange programs and full degree programs on both undergraduate and graduate levels. In addition, students may obtain travel and tuition support for studies abroad.

Exchange programs like Erasmus, Leonardo and Nordic Nordplus are crucial tools for promoting and influencing student mobility both for incoming and outgoing students. The Norwegian Centre for International Cooperation in Higher Education (SIU) plays an important role in Norway to promote international co-operation in education and research.

Student mobility is one of the criteria for national financing of higher education institutions through the new financial system. The new funding formula for higher education institutions incorporates measures designed to promote internationalization in Norwegian higher education. Institutions receive approximately €640 per incoming and outgoing exchange student. The aim is to increase more balanced mobility and exchange.

Academic staff is entitled to research terms based on specific criteria. A research term is quite often spent abroad. The Erasmus program has also had a certain impact on staff mobility. Academic staff who participate in shorter courses at one of the Norwegian study centres abroad (in Kiel, York and Caen) are entitled to financial assistance from the State Educational Loan Fund for their stay.

THE SOCIAL DIMENSION OF THE BOLOGNA PROCESS

The normal requirement for access to higher education is the completion of a three-year study program in academic subjects at the upper secondary level, or in some of the technical and vocational subjects.

From 2001 onwards, universities and university colleges have the right to admit students without sufficient formal entrance qualifications on the basis of age (25 years or more), and a combination of formal, informal and non-formal learning. The institution decides if an applicant is qualified for the study program concerned. Admission to higher education is based on a point system of assessments from upper secondary school, examinations in other disciplines at universities and university colleges, and additional points for age and completed military service. For certain groups, assessment for admission is now possible by means other than the point system. Disabled applicants are assessed for admission outside the point system, but the same qualifications as mentioned above are required.

The *Act on Universities and University Colleges* emphasizes the improvement of students' learning environment and mentions, in particular, disabled students' prospects of completing their studies.

To promote equality of access to higher education, student welfare organizations offer housing, canteens, day-care centres, medical care, etc. To a large extent, these services are financed with state support.

The State Educational Loan Fund was established in 1947 to improve social recruitment to higher education. All students enrolled in a study program at a higher education institution are entitled to financial support.

In parallel to the Quality Reform, an improved system of student financial support has been introduced. State higher education institutions do not charge tuition fees, but loans are available to cover all, or part, of tuition fees at private higher education institutions.

DEVELOPMENTS IN LIFELONG LEARNING

Encouraging Lifelong Learning Paths

Norway Opening Universities (NOU) is a national political initiative in the field of lifelong and flexible ICT-supported learning in higher education. NOU's main tasks are:

- To stimulate the development of lifelong and flexible learning in Norwegian higher education;
- To generate and share knowledge; and
- To act as a policy advisor for the Ministry in this field.

The Competence Reform of 1999 was designed as a tripartite collaboration with a strong commitment from social partners, authorities and the large variety of providers of adult education. Its overriding objective is to meet the needs for new and updated competence, felt in society, at workplaces, and by individuals. It is both an educational and working-life reform and is aimed at all adults, both inside and outside working life. All levels in the educational system, including higher education, have taken part in this reform, and higher education institutions have participated in various projects through The Competence Development Program.

Recognition of Prior Learning

Rights that assure educational opportunities:

- Adults with a right to complete education at the secondary level can have their non-formal and informal learning assessed. This assessment can provide access to secondary schools or can, in some cases, allow the applicant to shorten the study period.
- Applicants aged 23 or older, who have at least five years of relevant work experience and who possess competences in six key subjects, can obtain general access to studies at the tertiary level (general study competences).
- Adults aged 25 or older can have their non-formal and informal learning assessed in order to allow them to study a specific subject (as opposed to general study competences above). In some cases, applicants are allowed to condense their study periods. This assessment is done by the institution in which applicants wish to enrol.

In 2001 and 2002, between 7% and 8% of all applicants to higher education were enrolled through the procedure for recognition of non-formal and informal learning. Evaluation indicates that these students succeed as well as students admitted through regular processes, and that, due to work experience, they also contribute positively to the learning environments at the institutions.

CONTRIBUTION TO THE EUROPEAN DIMENSION OF HIGHER EDUCATION

Joint/Double Degrees

As of September 2004, 10 Norwegian higher education institutions were involved in 19 integrated study programs that lead to joint degrees.

Transnational Co-operation

Co-operation between Norwegian higher education institutions and other European higher education institutions is strongly encouraged. The Ministry urges Norwegian higher education institutions to participate in European and other international education and research programs (such as EU programs), and Norwegian institutions are, to an increasing extent, participating in various networks of co-operation between institutions in various European countries. Special initiatives include The Co-operation Programme with South East Europe—Research and Higher Education, and The Norwegian Co-operation Programme with Russia.

HOW HAVE COUNTRIES HARMONIZED THEIR POST-SECONDARY SYSTEMS WITH THE BOLOGNA PROCESS?

Australia

Although Australia is not a member of the European Union, there are many attempts within its government to better align itself with the EU initiative of the Bologna Process, as greater economical and social benefits resulting from this co-operation are clear.

The Department of Education, Science and Training has prepared a paper for discussion with the higher education sector in order to:

- Provide an overview of the current state of European higher education reforms; and
- Seek input from and discussion within the sector on how Australian governments and Australian higher education institutions might best respond to European reforms. Australia's aim is to work with the higher education sector to identify both issues and opportunities presented to Australia by the Bologna Process.

Australian higher education has much to gain, both domestically and in its international education objectives, by taking steps in parallel with the Bologna Process. Compatibility with Bologna would closely align key features of the Australian higher education system with the university systems of 45 European countries, facilitate movement of students between universities and enable other forms of engagement between Australian and European institutions.

THE BENEFITS OF BOLOGNA COMPATIBILITY

Facilitation of interaction and recognition

Australian institutions already have a range of relationships with European universities, including joint programs. Although students and academics move between Australian and European universities, and Australian qualifications are recognized in Europe, impediments resulting from differences in systems and basic structures still exist. Bologna compatibility would closely align key features of the Australian higher education system with the university systems of 45 European countries and would allow broader co-operation, facilitate movement of students between Australian and European higher education institutions, and aid recognition of Australia's programs.

Benefits to Australian students and employers

The Diploma Supplement: The Diploma Supplement is a short document attached to a higher education qualification aimed to improve international transparency and facilitate academic and professional recognition of qualifications. It is beneficial to students and employers.

The broader the currency of the supplement, the more useful to both parties—and not just in the reception of individuals with Australian qualifications in the European labour market.

The European Credit Transfer and Accumulation System (ECTS): ECTS is based on the principle that 60 credits measure the workload of a full-time student during one academic year. Credits in ECTS can be obtained only after successful completion of the work required and appropriate assessment of learning outcomes achieved. Australia uses the EFTSU system, which, while providing a common measure of student workload across Australian universities, doesn't specify the workload in terms of learning outcomes and competencies. The lack of an accepted uniform national system of credits in Australia is a significant impediment to mobility. Universities' different arrangements often mean that individual judgements have to be made for each student seeking credit for study completed.

Australian structures and processes that fit within the Bologna framework:

- Australia has a three-cycle (bachelor's, master's, doctorate) qualification structure. There are some areas in which efforts are needed to achieve Bologna compatibility—for example, any desired repositioning of Australian Honours degrees, four-year and graduate entry bachelor's degrees and one-year master's courses—to ensure alignment with Bologna structures and emerging trends.
- The Diploma Supplement has been trialled in Australia, but institutions will need to make decisions about adoption.
- The Australian quality assurance system generally fits within the broad guidelines established by the Bologna Process, but a documented audit of compatibility may be useful as a tool for marketing and dealing with future recognition issues in Europe. There is a question of whether AUQA should seek admission to the proposed, yet-to-be-developed European Register of Quality Assurance Agencies, should its eventual guidelines be framed to include external countries.
- Australia has the EFTSU system that provides a common measure of student workload across Australian universities. It may be possible to adapt this system so that it connects more effectively with the ECTS.

LIST OF ACRONYMS

ACCC:	Association of Canadian Community Colleges	CPRN:	Canadian Policy Research Network
AETS:	Adult Education and Training Survey (Canada)	DfES:	Department for Education and Skills (United Kingdom)
ALL:	Adult Literacy and Life Skills Survey	DG:	Directorate-General (Europe)
AUCC:	Association of Universities and Colleges of Canada	E.U.:	European Union
AUQA:	Australia Universities Quality Agency	EAG:	Education at a Glance (OECD)
BAföG:	Study grants (Germany)	ECA:	European Consortium for Accreditation
BFUG:	Bologna Follow-Up Group	ECTS:	European Credit Transfer System
BMBF:	<i>Bundesministerium für Bildung und Forschung</i> Federal Ministry of Education and Research (Germany)	ENIC:	European Network of Information Centres
CAUT:	Canadian Association of University Teachers	ENQA:	European Association for Quality Assurance in Higher Education
CBS:	National statistical bureau (Netherlands)	ESIB:	National Unions of Students in Europe
CCL:	Canadian Council on Learning	ESIS:	Enhanced Student Information System
CCSSE:	Community College Survey on Student Engagement (U.S. and Canada)	EURASHE:	European Association of Institutions in Higher Education
CEGEPs:	Collège d'enseignement général et professionnel (Québec, Canada)	FHEQ:	Framework for Higher Education Qualifications (United Kingdom)
CERI:	Centre for Educational Research and Innovation (OECD)	FINHEEC:	Finnish Higher Education Evaluation Council (Finland)
CESC:	Canadian Education Statistics Council	GDP:	Gross domestic product
CFI:	Canadian Foundation for Innovation	GERD:	Gross expenditures on research and development
CIMO:	Centre for International Mobility (Finland)	HE:	Higher education
CLA:	Collegiate Learning Assessment (United States)	HEA:	Higher Education Academy (United Kingdom)
CLI:	Composite Learning Index	HEFCE:	Higher Education Funding Council for England
CMEC:	Council of Ministers of Education, Canada	HEI:	Higher Education Institute
CMSF:	Canada Millennium Scholarship Foundation	HERD:	Higher Education Expenditures on Research and Development
CNRS:	Centre national de la recherche scientifique (France)	HESA:	Higher Education Statistics Agency (United Kingdom)
COF:	Council of the Federation	HRSDC:	Human Resources and Social Development Canada
COPS:	Canadian Occupational Projection System	IAF:	Institutional Assessment Framework
		IALS:	International Adult Literacy Survey
		ICT:	Information and communication technology
		IEA:	International Association for the Evaluation of Education Achievement (Europe)

LIST OF ACRONYMS

INES:	International Indicators of Education Systems (OECD)	PHAC:	Public Health Agency of Canada
INRA:	Institut national de la recherche agronomique (France)	PIAAC:	Program for International Assessment of Adult Competencies
INSERM:	Institut national de la santé et de la recherche médicale (France)	PISA:	Program for International Student Assessment
IPK:	International Program Office for Education and Training (Sweden)	PLAR:	Prior learning and assessment recognition
ISO:	International Standards Organization	PMI:	Prime Minister's Initiative (United Kingdom)
ITP:	Institutes of Technology and Polytechnics Quality (New Zealand)	PR:	Participation rate
LMI:	Labour market information	PRCD:	Policy Research and Coordination Directorate
MENESR:	Ministère de l'éducation nationale, de l'enseignement supérieur et de la recherche (France)	PS:	Post-secondary
MOD:	Ministry of Defence (United Kingdom)	PSE:	Post-secondary education
NAO:	Netherlands Accreditation Organization	PSI:	Post-secondary institution
NARIC:	National Academic Recognition Information Centre (Netherlands)	QA:	Quality assurance
NCE:	Network of Centres of Excellence	QAA:	Quality Assurance Agency (United Kingdom)
NOKUT:	Norwegian Agency for Quality Assurance in Education	QTS:	Qualified teacher status (United Kingdom)
NOU:	Norway Opening Universities	R&D:	Research and development
NSE:	Natural sciences and engineering	S&T:	Science and technology
NSERC:	Natural Sciences and Engineering Research Council of Canada	SIDA:	Swedish International Development Cooperation Agency
NSSE:	National Survey of Student Engagement (U.S. and Canada)	SIU:	Norwegian Centre for International Cooperation in Higher Education
NUFFIC:	Netherlands organization for international co-operation in higher education (Netherlands)	SLID:	Survey of Labour and Income Dynamics (Canada)
NVAO:	The Nederlands-Vlaamse Accreditatie Organisatie in oprichting or Dutch/Flemish Accrediting Organization (Netherlands)	SMEs:	Small- and medium-sized enterprises
OECD:	Organisation for Economic Co-operation and Development	STID:	Science, Technology and Industry Database (OECD)
OFFA:	Office for Fair Access (United Kingdom)	STINT:	Swedish Foundation for International Cooperation in Research and Higher Education
OIA:	Office of the Independent Adjudicator (United Kingdom)	TEC:	Tertiary Education Commission (New Zealand)
PCEIP:	Pan-Canadian Education Indicators Program	U.K.:	United Kingdom
		U.S.:	United States
		UBC:	University of British Columbia
		UNESCO:	United Nations Educational, Scientific and Cultural Organization
		WDA:	Workforce Development Agency (Singapore)

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