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RESEARCH THAT HAS IMPACT



Researchers at the University of Regina are working to improve PTSD treatment for first responders



This year in Canada, 26 first responders and five military members have died by their own hand. At the current rate, this may be the worst year for suicides, surpassing the 40 first responders and 17 military personnel who died last year.

University of Regina researchers are leading efforts to understand and treat Post-Traumatic Stress Disorder (PTSD) in first responders, eradicate those horrific statistics, and improve first responder quality of life.

Researchers recently conducted a massive study of Peer Support and Crisis Intervention Programs, identifying an urgent need for more research to inform practices. Since 2014, nearly 700 patients have received University researchers' Internet Delivered Cognitive Behaviour Therapy; it was efficient, effective, and well received, with huge potential for first responders. Working with public safety leaders, researchers will launch the first Canada-wide standardized mental health assessment for public safety personnel to support broad availability for treatment.

The University of Regina is also leading a multi-university, multinational, interdisciplinary effort to identify causes of PTSD with leading-edge technologies, while evaluating integrating interventions into training and service for public safety personnel.

Building on its growing expertise, the University is collaborating with institutions coast-to-coast to establish the Canadian Institute for Public Safety Research and Treatment, an institute dedicated to research and treatment of public safety personnel stress injuries.

For more information about University of Regina research, visit www.uregina.ca/research

University
of Regina

Policy

Canadian Politics and Public Policy

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From the Editor / L. Ian MacDonald

Canadian Universities

Welcome to our special issue on Canada's universities, for which we have partnered with Universities Canada, which represents nearly 100 universities across the country. In 2015, there were 1.7 million full and part-time university students in Canada, while Canadian universities accounted for \$35 billion of economic activity, employing 250,000 people.

In this extensive cover package, we examine a wide range of challenges and opportunities facing Canadian universities, from R&D and innovation, from STEM to STEAM, from fundraising to infrastructure renewal, from the challenges of indigenous higher education to student aid.

We begin with a remarkable Q&A with Governor General David Johnston, who in a previous life was principal of McGill University for 15 years, and president of Waterloo University for another 12 years. "Welcome to our humble abode," he said as we met at Rideau Hall.

The GG has made higher education one of the touchstones of his vice-regal term. There were no "governor generalities" in our conversation; he was impassioned in his advocacy of universities.

Universities Canada Chair Elizabeth Cannon, president of University of Calgary, sees Canada's universities as incubators of excellence. UC President Paul Davidson proposes three key ways the federal government can work with universities to set Canada on the road to prosperity, picking up where the 2016 federal budget left off.

Pollster Bruce Anderson of Abacus Research was in the field in 2015, asking Canadians about the reputation and expectations of universities. Their reputation is high: "77 per cent say their view is positive," Anderson reports.

University of Regina President Vianne Timmons looks at the gender gap in Canadian universities and concludes they still have a long way to go. Where women comprised 18 per cent of university presidents in the mid-1990s, two decades later they still account for only 23 per cent.

Kevin Kee, Dean of Arts at the University of Ottawa, considers the issue of STEM to STEAM through the eyes of his son, Jacob, who he says is made for BA studies. But it's a different universe than the one his father experienced in the library in the 1980s. Jacob's library is the internet and "his challenge is seemingly limitless information."

Contributing writer David Mitchell, a former chief fundraiser for three Canadian universities, asks why fundraising "now assumes such a pre-eminent position in higher education?"

Simon Fraser University President Andrew Petter writes that Canada can close an economic innovation gap by leveraging the strengths of Canada's globally competitive universities. BMO vice chair Kevin Lynch, a former board chair at University of Waterloo, offers a detailed prescription for how Canada can leverage the economic, intellectual and innovation hub of the Toronto-Waterloo corridor into a world-class supercluster.

UQAM Rector Robert Proulx writes that Canadian universities play an instrumental role in developing a dynamic innovation system to provide for Canada's social, economic and cultural advancement. Public Policy Forum Vice President Julie Cafley, who has studied the high turnover rates of university presidents, thinks that UBC's new president, Santa Ono, could turn "the oft-failed job of a Canadian university president into a campus stroll on a sunny day." He's

got the management and communications skills, wears a trademark bow tie, and besides, she writes, "he's cool."

Western University President Amit Chakma writes that more Canadian students need to spend time studying or volunteering abroad. He notes that only three per cent of undergrad students participate in such programs offered by 97 per cent of our universities.

McGill Principal Suzanne Fortier writes that the big challenge facing universities is how to transfer knowledge and skills to students that will serve them long-term, at a time when the pace of change is dazzling and only increasing. In a clarion call for university education for indigenous students, Indspire President Roberta Jamieson notes that despite a high school graduation rate of only 37 per cent among aboriginal students, "our experience at Indspire is that when students we support financially and in other ways get into university, 93 per cent graduate."

On where a university degree will take graduates, University of Ottawa's Ross Finnie shares the data of a study tracking on their earnings from 2005-13. The numbers show they did well despite the global financial crisis of 2008-09. And on the question of student aid, Patrick Snider of the Canadian Alliance of Student Associations writes that after a record turnout in the last election, student issues are taking a prominent place with the new government.

In *Canada and the World*, Jeremy Kinsman looks at the UK and EU after the Brexit vote.

Finally, Robin Sears writes an affectionate tribute to Liberal activist and visionary strategist Mike Robinson. A gentleman and a player. And columnist Don Newman looks ahead to the US presidential election. **P**



Policy Editor L. Ian MacDonald in conversation with Governor General David Johnston at Rideau Hall. The Governor General was the head of two Canadian universities, McGill and Waterloo, for 27 years. Photo: Rideau Hall/MCpl Vincent Carbonneau.

Q&A: A Conversation With Governor General David Johnston

David Johnston spent more than two decades at the helm of first McGill University, then the University of Waterloo, before being named Governor General in 2010. Johnston has made postsecondary education, research and innovation priorities of his tenure as Canada's vice-regal representative. Policy Editor L. Ian MacDonald sat down with him at Rideau Hall to discuss those and other subjects.

Policy: Your Excellency, thank you for participating in our special issue on Canadian universities. You have been a CEO of two major Canadian universities. I wonder if you could describe that experience? It's a notoriously difficult job being president of a university.

Governor General David Johnston:

I guess one is always careful using the CEO term. My personal reaction is I loved it. The cause and the company are so good. The cause of higher education is so important, I think, especially in our world today—and I found the company of people from students, staff, faculty, alumni, and so on, for the most part, exceedingly good people. While there are challenges, of course, you manage the challenges and you savour the triumphs. It was a wonderful 27-year run. I was 15 years—three five-year terms—at McGill, and then essentially two secure terms at

Waterloo, although my last term was interrupted by coming here.

Policy: McGill became number 17 in the world in the rankings on your watch and Waterloo became a global brand while you were there. Tell us how you did that.

David Johnston: Well, I would change the pronoun from you, singular, to plural, first of all and I would diminish the role of a president. Bear in mind when I came to McGill, it was an exceedingly strong institution with a remarkable history, but at a particular time when the environment was certainly a challenging and a stormy one. If I and my senior colleagues made any important contribution, it was to stabilize the institution and restore that longer-term sense that this is an institution of great quality and we'll manage through this as we managed through other challenges and did very well. In the case of Waterloo, when I went there, it was about 42 years old, it was well established as a very unconventional university and I think the challenge was to continue the unconventionality of the university into a new era and try to move from regional and national prominence to a more international prominence, and it was very much an effort of a team of people.

Policy: In Waterloo, you saw the remarkable growth of applied research—the creation of the Waterloo corridor, didn't you? It's quite impressive.

David Johnston: The characteristics of Waterloo are the determination to put knowledge into use, not always immediately practical use but the utility approach to it. The university began as an engineering faculty spun off from Waterloo Lutheran College in the expectation that it would be able to attract government operating grants when religious based organizations or secular ones didn't work. The Lutheran Senate would not give up its responsibilities, so it was an orphan from the beginning. And I decided early on that it would be a very innovative, unconventional orphan. So it began with cooperative education, which I regard as one of the truly important contributions to higher education of the 20th century. The other thing that happened in Waterloo, was

that very early on, we decided on an intellectual property policy that is creator-owned, so the university does not own the patent—the professors own it themselves. The university's function is to be removed from a proprietary interest and work to bring together partners to commercialize. Also, I should say that Waterloo County has been a very practical environment, a good ecosystem, for entrepreneurship for a very long time.

Policy: Do you have any thoughts on the difficulty of being a university president in the age of social media, with all the platforms that are out there for the people to snipe at you?

David Johnston: I guess it's more difficult because information is so rapid and it's so often undigested and sometimes that produces unusual results.

“ I think it's important that we, in Canada, develop young people who are global citizens to be proud Canadians but see the globe as their playground and function with that kind of mentality—and we have ways to go. ”

Policy: I know that you are quite passionate about student mobility and the importance of studying abroad. You went to Harvard yourself and you played hockey and your five daughters, I understand, studied abroad. What about the importance of that?

David Johnston: Let's say a couple things I'm passionate about. Our five daughters began international exchanges at age 12 and although they came from an affluent family, they were exposed to a very wide range of society, volunteer work in the schools they attended and so on. Four things happened to my daughters as part of their *formation*, as we say in French, that were quite key from the international and other diverse experiences. One, they became more curious. Two, they became more tolerant in the best sense of that word, I'm in-

terested in why you're different and I have appreciation for that. The third thing is their judgment becomes better because they didn't carry the baggage of bigotry and they look for the other side of the story—they wanted to see more evidence on a particular problem from a different angle before they come to a conclusion. The fourth thing is most important. They become more empathetic, not sympathetic. So that was the experience of my five daughters and I think it's important that we, in Canada, develop young people who are global citizens to be proud Canadians but see the globe as their playground and function with that kind of mentality—and we have ways to go.

Only three per cent of our undergraduate students have an experience abroad whether it is to volunteer in an NGO or a work term abroad or an academic exchange. That should be 100 per cent. So we've done a number of things here at Rideau Hall in collaboration with the university and the college community to try and enhance that.

Policy: Tell us a little bit of your own experience of studying at Harvard. Did you ever beat Boston College in hockey?

David Johnston: You bet we did. We beat them in the last game I played at Harvard. It ended at three minutes to midnight. It was at the Boston Garden, in April, and the ice was lousy as it often was, because they heated it. It was the third sudden-death overtime. Had it gone on for three more minutes we would have had to stop because of the Sunday Massachusetts law which said you couldn't have a sporting event that day, we would have had to continue on the Monday. We beat them 4-3 in sudden death overtime and we won the Eastern College Athletic Conference. They were a good team. They were really good. We were nip and tuck in those days. We won the Ivy League championship, the three years that I played on the varsity team.

Policy: And how did being a foreign student change your life?

David Johnston: Well, it's interesting. I grew up in Sault Ste. Marie,

and when I sent my application to Harvard, the principal of our school, who was a very good man, would not write the letter of reference. I was a good student and I said “Sir, why won’t you?” He said, “I don’t want you to go to a second-rate American university.” I said “Well, I’m sure there are second rates and third rates but this one is first rate.” He said, “Well, I’m worried you’ll be lost and won’t come back to Canada.” I said, “I think I will but surely that’s my decision.” But he was adamant that no, it was not a good thing and so he didn’t do it. So I went to the football coach, who was also a history teacher, who said: “Oh, I’ll write your letter. You’re a big frog in a very small pond. It’s time for you to get your head knocked off by people that are faster and tougher and meaner than you.” And that was a very good experience for me. But Harvard was, I think, transforming for me. Certainly, the intellectual stimulus was great. It helped to open my mind but so many other things about it. I loved the sports. I found Boston an exciting place to stay but I have such a debt to Harvard that took me as a pretty raw rough diamond and helped to fashion it. So I’ve been involved in virtually every alumni activity you can imagine for Harvard.

Policy: You were there when a son of Harvard, John F. Kennedy, was president of the United States. It must have been a pretty exciting time in terms of transformational leadership.

David Johnston: It was. We didn’t appreciate how transformational at the time but a number of our professors went to Washington to serve with President Kennedy’s cabinet and different government positions and that brought us even closer because I was majoring in government and international relations and some of these professors left us but maintained contact with the university. It was an exciting time in the US I was involved in only one student protest. In 1962, Harvard changed our diploma from Latin to English and we thought this was most unfortunate. We wrote a letter of concern from student council to the university president to at least have an opportunity to be heard on this matter.



“There’s a balance, a harmony” between pure and applied research. Photo: Rideau Hall/MCpl Vincent Carbonneau.

Policy: Did you participate in the obligatory student sit-in of the president’s office?

David Johnston: No this was long before these were done. But this was an idea and so we sent this letter off in the morning and by early afternoon, we had an answer back saying “I would be delighted to meet with you to discuss this matter. Would you come to my garden for tea this afternoon?” So we quickly got into our suits and ties and went over. We were ushered into the garden and tea was poured. President Pusey greeted us as if we were long-lost friends and then stood up to speak. For about 15 minutes, he spoke to us in a language we didn’t understand. It was all Latin. At the end, he said: “I’m surprised. I sense none of you understand anything I have said in the past 15 minutes. This was Cicero’s speech to the Roman Senate on the importance of traditions and on the necessity of understanding them. So when all of you are able to read and to understand your degrees in Latin, then we will return them to Latin.” We got up, walked out and said “Thank you, sir, for giving us a hearing.”

Policy: Can you talk about the Governor General’s Global Research Excellence Initiative?

David Johnston: We started that in the first years here. I met the Science, Technology and Innovation Council. During the course of the meeting, we all expressed concern that while Canada punches above its weight in research—we are not as well known on the international stage as we should be. Take Nobel prizes: of the last 10 Nobel prizes won by Canadians by birth, the majority are doing their work in the United States. We have to do something about this. This was before Alice Munro and Dr. Arthur McDonald won Nobel Prizes. We learned that you don’t apply for the Nobel Prize. You have to be invited by the Nobel Committee to nominate a meritorious candidate, or be a Nobel laureate or someone from a Scandinavian country. So if you want to nominate a Canadian, best you find a Nobel laureate to make the nomination. And we felt that there is a Canadian cultural characteristic which says do not advance yourself too much, it’s a bit aggressive to do so. You don’t celebrate great triumphs as much as you should, it’s a bit showy. We certainly have to overcome that.

“ We went from 11 to 24 international prizes from 2012 to 2015, so we hope that the trajectory is increasing. And what is happening now on many university campuses is that there’s greater attention being paid to identifying and nominating people for prizes—not simply the renowned international ones but some of the more regional ones as well. ”

So we set up a coordinating committee of the granting councils and other representatives of research institutions to create an inventory of all of the leading international prizes that are used to benchmark nations’ success in this context. There are about 130 prizes

listed in the inventory which we make accessible to all universities and we offer to assist universities in strengthening their nominations for these prizes. Through our canvassing committee we help them identify meritorious candidates for these international awards and prizes. So that process is now in its third year and we like to think it's encouraged a much more ambitious approach within our universities to promote their most recognized scholars for these prizes. We went from 11 to 24 international prizes from 2012 to 2015, so we hope that the trajectory is increasing. And what is happening now on many university campuses is that there's greater attention being paid to identifying and nominating people for prizes—not simply the renowned international ones but some of the more regional ones as well. All with a view of promoting and celebrating a culture of excellence.

Policy: What's your sense of the debate between pure as opposed to applied research? You probably saw a lot of that in Waterloo.

David Johnston: Yes. It's a balance but it's more than a balance, it's a harmony. If one were to make a short-term decision, with a heavy emphasis on applied research, your basic research suffers. What happens is the intellectual talent bank on the pure side diminishes and you participate less effectively in the international fora of basic sophisticated knowledge and ultimately, applied research suffers as well. One, because you're not participating in the pools of talent. Two, because there's a connection between the two. Three weeks ago, I was in Montreal speaking at C2 Montreal, a conference that touches on innovation, and I was describing the different points on that spectrum which is back and forth and I went back to the Latin roots. Three words: Discovery, invention and innovation. For discovery, which comes from *decoveri* which means to open completely or to yield. Invention comes from *inveniri* which means to come into or to arrive at. And then the third is innovation, which tends to be more a series of acts, which comes from *innovari*, which means to alter or to refresh and it usually means to take an existing idea, maybe an invention, and gradu-

ally improving it by doing things better. All three of those distinctive activities are connected one to the other and the movement is back and forth. You can't have one without the other.

Policy: And that was my next question about the importance of the Governor General's Innovation Awards.

David Johnston: We started those because we thought there was a gap in the country and not simply in the celebration of innovation, but enhancing the culture of innovation. After an analysis, we identified about 35 nominating partners who had innovation awards of one kind or another and they became partners. The Governor General's Innovation Awards select six winners and celebrate them at an annual award ceremony. But we see the winners and the nominating partners as a collectivity, a collaboration of the winning, to communicate to Canadians how significant these six are. Tom Jenkins of Open Text and I are doing a book for 2017 on innovation in which we will try to describe some of the more significant innovation stories in Canada to continue to enhance the culture of innovation in the country.

Policy: We know that you are passionate about indigenous higher education. How do we improve outcomes given the drop-out rate in secondary reserve schools, which is 62 per cent and 25 per cent in non-reserve schools? How do we get those kids into university?

David Johnston: Well as Einstein once said: "For every complex problem, there is a simple wrong answer." And we tried some of the simple wrong answers already. You have to work carefully with the indigenous people. We have to recognize that it is a vast panoply of different cultures, of different languages, of different experiences, of different regions. Then there is an important need to meet the financial gap. We're clear that the primary and secondary schools, certainly on the reserves, are less funded than schools elsewhere in Canada for example. We have to deal with that. I also think we have to focus on teaching the teachers the best way to address that problem, to have teachers who come from indigenous environments return to their communities and teach. You identify those initia-

tives that are working best in this environment, not as top-down solutions but from the grass roots and then try to spread them across the country.

Policy: What about the importance of aboriginal role models—the Carey Prices of the world?

David Johnston: Huge. Just last Friday and Saturday night, at the Governor General's Performing Arts Awards, we celebrated Susan Aglukark, the singer, a remarkable person. One of our Governor General's Innovation Awards winners is Christi Belcourt. She does remarkable indigenous art but she puts it into social media and encourages young people to develop their own art within their own communities as a way of returning to indigenous cultures and celebrating those indigenous cultures. Then there's Douglas Cardinal, the indigenous architect who built the Canadian Museum of History, just across the river, another great role model...

Policy: Can I ask you a historical footnote question about the 1984 election leaders' debate, which you moderated? When Mr. Turner said "I had no option" and Mr. Mulroney said "You had an option, sir. You could have said 'No'." Did you have sense that something important was happening?

David Johnston: Not as much as transpired. In fact, I remember that event well because it occurred in the third half hour of a two-hour debate divided into four sections. That patronage issue had to do partly with domestic politics and partly international relations because a number of them were diplomatic posts and we actually had touched on that question twice in the previous two half hours so this was the third half hour and I was looking for a way to move the debate past that but I wasn't able to phrase my intervention properly so the discussion went on and that's what happened. I did not have an appreciation at the time of the significance of that.

Policy: It changed the entire course of the campaign.

David Johnston: It was an important factor, yes.

Policy: Thank you for doing this.

David Johnston: My pleasure. Good seeing you. **P**



University of Calgary President Elizabeth Cannon with a graduating class on convocation day. Stepping from one world into another, better prepared for it by the experience of a modern Canadian university. University of Calgary photo.

Canada's Universities as Incubators of Excellence

Elizabeth Cannon

The Trudeau government has unabashedly claimed the role of partner with Canada's universities in producing world-class research, fostering innovation and enriching our next generation of global citizens—a commitment welcomed by postsecondary institutions across the country. As we approach Canada's sesquicentennial, our universities are already building on a proud history by incubating excellence for the next century.

One million students are taking notes, conducting research and interpreting texts on university campuses across Canada today, pursuing their undergraduate degrees. Among them are the soon-to-be sesquicentennial grads, our first foot into the next 150 years as a nation.

Next year, 2017, will be a benchmark for them. They'll measure time and date their styles, music and cars by the year of their graduation.

Centennial graduates, who earned their parchments in 1967, may remember that they wore miniskirts, paisley and bellbottoms, drove Mustangs and Cougars and listened to Lulu, the Boxtops and Bobbie Gentry. They'll also remember the more permanent date stamps of Canada's centennial. We built libraries, museums, arenas and the National Arts Centre in celebration. These monuments have been integral to Canadian life and learning over the past half century.

When we look back in 50 years at 2017, what will we remember? More bricks and mortar? Perhaps not. Rather, I think we'll see the start of a new ambitious vision for Canada that has as much to do with building up people and ideas as it does the physical artifacts that place us in time.

We see this bold vision for the future—one characterized by innovation, prosperity and inclusion—articulated by our federal government. Universities share in this vision. Through nurturing discovery, sharing new knowledge and fostering the entrepreneurial spirit, universities are at the heart of innovation in Canada. They bring ideas and people together, helping to find solutions to the challenges facing our communities and our country.

As they have always done, Canada's universities will play a pivotal role in realizing ambitions for a more prosperous, innovative and inclusive Canada. Many of our universities pre-date Confederation. And their commitments to students, to communities, to research and to our country endure.

Today, Canada's universities are focused on mobilizing the talent needed to realize that hopeful imagining of the future. Last fall, universities outlined how they will do this through their renewed Commitments to Canadians. Included are commitments to provide diverse learning opportunities and partnerships with others to help all students achieve their potential.

“Students at work today need to know and feel that they are already part of the “real world” and a very real-world network. Universities serve as connectors and catalysts, bringing together ideas and resources from the private sector, government, colleges and community organizations.”

As president of the University of Calgary, I know the importance of revisiting and reminding ourselves of the desired outcomes of education. There is a destination, for sure. But the journey is part of the outcome. The journey includes equipping students with the skills and knowledge they need to flourish, even if it won't be on the exam. We do that through measured excellence locally and by international standards. We take learning to where it happens best—including into the community and the workplace—and how it happens best, whether that's through hands-on experiences or the sharing of knowledge. And we put our best minds (students and faculty) on the world's most pressing problems.

“The latest federal budget promised more funding for students and the places they learn. A \$2-billion commitment in postsecondary support to modernize labs, support green technologies and enhance capacity for commercialization will build true 21st century facilities.”

As a country, we have chosen higher education as a marker of national prosperity. Indeed, we all have a stake in students' future contributions to Canada's eco-

nomic, social and intellectual success. Those students at work today need to know and feel that they are already part of the “real world” and a very real-world network. Universities serve as connectors and catalysts, bringing together ideas and resources from the private sector, government, colleges and community organizations.

When our newest grads look back on this significant academic year, they'll remember a government planning for investments that look forward, investments designed to build a prosperous and inclusive future.

The latest federal budget promised more funding for students and the places they learn. A \$2-billion commitment in postsecondary support to modernize labs, support green technologies and enhance capacity for commercialization will build true 21st century facilities.

An increase in funding for research councils of \$95 million a year, without specific targets, opens the door to allowing discovery to lead. Without discovery, we can be certain, there is no innovation. At the same time, \$800 million to support innovation networks and clusters speaks to the Innovation Agenda. The initiatives rely on each other.

Enhanced funding for students, including changes to the Canada Student Loan program, will improve access to higher education. I wonder if, in 50 years, some will remember 2017 as the year that the first in their family was able to enter university studies. It's a powerful moment.

The federal government also committed to more support for indig-



Students relaxing and reading on campus at the University of Calgary. A university's job, writes Elizabeth Cannon, is "getting it right" for the next generation. UofC photo.

enous peoples related to education. These initiatives lay the groundwork for achieving potential, they make it possible to ensure fuller representation of indigenous people in higher education, and they recognize that education is a pathway to prosperity.

Universities are uniquely positioned to make this new vision of Canada a reality. No person or community in Canada is untouched by the work of universities. And these kinds of investments pay off. Just look at the Canada Foundation for Innovation (CFI), now preparing for its 20th anniversary. A creation of the federal government, it was set up to build Canada's capacity to undertake world-class research and technology development to benefit Canadians. That it has.

The CFI has made possible the University of Saskatchewan's Canadian Light Source, Canada's internationally renowned national synchrotron facility that has contributed to ground-breaking discoveries and advancements in health, agriculture, nanotechnology and natural resources. It also funded the Research Institute of McGill's University Health Centre, where physicians and nurses work with researchers to understand diseases and

develop new diagnostic tools and better therapies.

Those are practical examples. Sometimes we can't imagine where discovery investments will take us. I can only imagine the discussions that went on when researchers applied for multi-million dollar support to send equipment two kilometres underground to study neutrinos. We know now that the results went as deep as the mine shaft. Arthur McDonald of Queen's University and his University of Tokyo colleague Takaaki Kajita won the Nobel Prize in Physics for their work that showed neutrinos produced by the sun change identity on their way to Earth. The new knowledge brought no immediate practical application. We didn't need it to. But now we can wonder about its effects on quantum computing or harnessing nuclear fusion or any number of areas of research that are made stronger by knowing.

That's not to say that Canada should move forward with bold, new investments without a solid plan for the future. At work now are the Advisory Panel for the Review of Federal Support for Fundamental Science and the newly launched government Innovation Agenda. Universities are playing an active role in both processes. I'm

pleased to be involved not only as a member of the Science, Technology and Innovation Council, but as a university president and chair of Universities Canada.

We expect the reviews to be coordinated and aligned, given that discovery research, applied research, talent mobilization, innovation and economic growth are intimately connected. Universities will encourage research funding at globally competitive levels. And they'll seek greater support for interdisciplinary and international research collaboration.

Universities and the federal government share an ambitious vision: to develop a prosperous and just society, and a connected Canada that brings together the top minds and resources to address pressing national and international problems. We have all the right components to achieve that vision.

To kick off Canada's sesquicentennial, Universities Canada will convene accomplished students from Canada's 97 universities and other young innovators with forward-thinkers from business, government and community organizations at a national conference in Ottawa in February 2017. They'll share fresh perspectives on how to build an innovative, prosperous and inclusive Canada for the 21st century. *Converge 2017*, as it's called, will explore Canada's potential to be a model of equality, pluralism and prosperity.

Who better to welcome the next 50 years, than the youth who will one day look back and say, "It was an ambitious vision. And we got it right." **P**

Elizabeth Cannon, Chair of Universities Canada, is President and Vice-Chancellor of the University of Calgary. She is also Chair of the Canada Research Knowledge Network. She holds a doctorate in geomatics engineering from the University of Calgary. president@ucalgary.ca



Chemistry lab at the University of Toronto Mississauga. University of Toronto photo.

Three Key Steps to Becoming an Innovation Nation

Paul Davidson

To Canada's university presidents, innovation is neither an abstract concept nor just a talismanic political keyword. Every day in the research labs of Canada's universities, knowledge is translated into the quantifiable, practical inventions that feed Canadian innovation and enhance our global competitiveness. Universities Canada President Paul Davidson has harnessed that experience to inform his recommendations for Canada's Innovation Agenda.

As the countdown begins to Canada's sesquicentennial, the government is championing an ambitious vision of an innovative, inclusive and prosperous Canada for the next 50 years.

Is it an achievable vision? Yes. But it will require a move from the transitional to the transformational in policy decisions.

Canada's universities have confidence in the promise of innovation because

we know our country has the talent. The challenge before us is to do a better job of unlocking and mobilizing that talent.

That requires cooperation and collaboration among our educational institutions, government and business sectors. And it requires a solid plan of action that we don't have yet. The federal government reviews now underway in fundamental science, innovation and economic development, however, help create the agenda we need. I believe that agenda should include three fundamental steps.

First, we need to nurture our next generation of leaders and innovators, ensuring Canada has an educated workforce with the skills necessary to succeed in and contribute to the global economy. That means giving all students access to experiential learning and global study.

Students need access to 21st century learning experiences that let them learn in the workplace. The Business and Higher Education Roundtable has called for access to work-integrated learning opportunities for 100 per cent of Canadian students. It's an ambitious goal, but imagine how our young people—and our country—will benefit.

In a speech to university presidents last May, Dave McKay, CEO of Royal Bank of Canada (RBC), noted one of the crucial aspects of co-ops and internships that we don't always talk about: they democratize access to jobs. He argued that for minority groups who don't have social influence or established networks, these experiences level the playing field and give students a boost when it comes to job opportunities.

Learning across borders is also part of a 21st century education. Young Canadians need to understand other countries and other cultures for Canada to become a global innovation nation. There's no better way to gain these international competencies than by taking part in a learning experience overseas during university—whether

“Young Canadians need to understand other countries and other cultures for Canada to become a global innovation nation. There's no better way to gain these international competencies than by taking part in a learning experience overseas during university.”

it's through study abroad programs, field schools, research abroad, or international co-ops and internships.

In a town hall with Mexican President Enrique Peña Nieto ahead of the Three Amigos summit in late June, Prime Minister Justin Trudeau addressed this issue with Canadian and Mexican students. “Young people understand that we're in a globalized world right now, and the more we can challenge ourselves to understand different realities, different perspectives, different cultures, the more we discover about ourselves and our place in an increasingly complex world,” he said.

But as it stands, only 3 per cent of Canadian university students go abroad to study in any given year, despite 97 per cent of universities offering international experiences. Students have identified cost as a barrier to global study. We need to address this and we need to ingrain a culture of global curiosity in students, faculty and families.

Increasing the international mobility of university students is a crucial step in developing our next generation of leaders and sharpening Canada's competitive edge.

Second, reconciliation with First Nations is a major priority for Canadian universities, for the federal government, and for Canadians. A little over a year ago, Justice Murray Sinclair, chair of the Truth and Reconciliation Commission, said in an interview that “education is what got us into this mess,” but that education is also “the key to reconciliation.”

I couldn't agree more. And universities have an important role to play

in fostering a renewed relationship between indigenous and non-indigenous people in Canada. A university education is a transformative experience, expanding knowledge, nurturing critical thinking and inspiring new ideas, creativity and innovation.

Canada needs to do more to invest in the knowledge, skills and talent of indigenous youth. Fewer than 10 per cent of indigenous people aged 24-35 in Canada have a university degree, compared to 26 per cent of non-indigenous Canadians. We need to do better as a country to support young indigenous people in reaching their full potential.

Canada's universities are ramping up their efforts to build welcoming and respectful learning environments on campus through academic programs, services, support mechanisms, and spaces specifically designed for indigenous students.

A recent survey by Universities Canada shares heartening evidence of this progress. In only two years, we've seen an increase of 33 per cent in the number of undergraduate and graduate programs with a focus on indigenous issues or specifically designed for indigenous students.

And 86 per cent of universities now offer targeted support services, including academic counselling and peer mentorship, to meet the unique needs of indigenous students.

But we must do more and we need our partners in government and business to help. To unlock the untapped potential of indigenous youth, we need greater financial aid to improve access to higher education, and we need support for programs that boost student retention.

Beyond helping indigenous students get to campus and succeed at their studies, universities play an even broader role in reconciliation. Universities convene citizens to reflect on our past and chart an inclusive future. Universities are fostering indigenous leadership through new governance structures, and modifying curricula to recognize indigenous ways of knowing. These are early days but the work of reconciliation is intensifying at Canada's universities.

“ With less than 0.5 per cent of the world's population, Canada's researchers produce four per cent of the world's scientific papers and nearly five per cent of the world's most frequently cited papers. ”

Third, we must rethink how we support our top researchers and innovators.

Canada already punches above its weight internationally. With less than 0.5 per cent of the world's population, Canada's researchers produce four per cent of the world's scientific papers and nearly five per cent of the world's most frequently cited papers.

University researchers performed over \$13 billion of research and development in 2014—40 per cent of the national total. And every year, university researchers conduct nearly \$1 billion in research for businesses, helping build their competitive advantage.

But the fact remains that we are falling behind other nations' investments in research and development. Between 2006 and 2014, higher education expenditures on research in Canada fell from 3rd to 7th among OECD nations.

Raising our level of ambition for what Canada can be over the next decade means investing in higher education research to bring us back to globally competitive levels. This would enable the Canada Foundation for Innovation to provide facilities and equipment to support advanced research across disciplinary and industrial sectors. It would invest in talent and discovery through expanded support for the National Science and Engineering Research Council (NSERC), the Social Sciences and Humanities Research Council (SSHRC) and the Canadian Institutes for Health Research (CIHR).

Canadian talent must be equipped to excel across borders through international research collaboration, to find solutions to the challenges facing our country and our world. And our funding mechanisms must better support interdisciplinary research to nurture discovery and innovation at the many intersections of modern society.

Business has an important role to play. We must be mindful that from 2006 to 2013, our global ranking in business expenditures on R&D (BERD) fell from 18th to 26th. It is critical that Canadian business step up and reinvest in R&D and hire more talented graduates from Canada's universities.

“ The fact remains that we are falling behind other nations' investments in research and development. Between 2006 and 2014, higher education expenditures on research in Canada fell from 3rd to 7th among OECD nations. ”

The federal government's first budget in March showed it understands the value and potential of Canadian universities.

Two billion dollars over three years for the Post-secondary Institutions Strategic Investment Fund was a powerful investment in students and the places people learn. We welcome the recent news of modern labs, new research facilities and green energy projects being funded at universities across Canada.

The budget also marked the highest amount of new annual funding for discovery research in more than a decade, with an additional \$95 million per year to the budgets of the research granting councils starting in 2016–17. This is an important move toward returning to globally competitive research funding levels.

New funding for co-op education also demonstrated the value this government places on hands-on learning opportunities for students. And investments in K-12 education for indigenous children and teens lay the groundwork for them to aspire to and succeed in higher education.

But now comes the heavy lifting. This government has a lot of work ahead—and has shown that it is ready to take action to catalyze economic prosperity and social inclusion. This summer's review of fundamental science, the new Innovation Agenda, and the new Economic Advisory Panel hold great potential for forging a new path forward.

We have to seize this moment. Discovery research, applied research, talent mobilization, innovation and economic growth are indispensably connected. To realize an innovative and prosperous future, we need to make strategic investments in people and ideas—and universities will play a fundamental role in getting the results Canada needs from these investments.

Our universities are not only engines of innovation, they are a proven path to prosperity—for individuals, communities and for our country. **P**

*Paul Davidson is President and CEO of Universities Canada.
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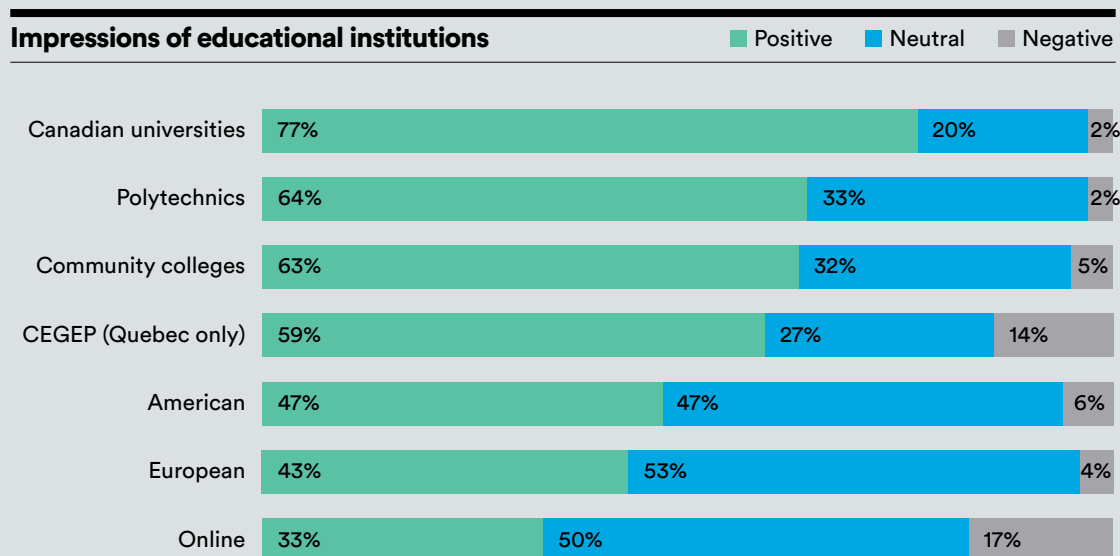
Canadian Universities: Public Reputation and Expectations

Bruce Anderson

On behalf of Universities Canada, Abacus Research conducted an extensive online nationwide study of Canadians' views of universities.

Reputation of Canada's Universities

The large majority of Canadians have a good impression of Canada's universities. 77% say their view is positive, 20% are neutral, and only 2% have a negative view. Positive feelings are also the norm for polytechnics, community colleges and CEGEPs.



Survey question: When you think about each of the following, please indicate if you have a very positive, positive, neutral, negative or very negative impression?

ABACUS DATA

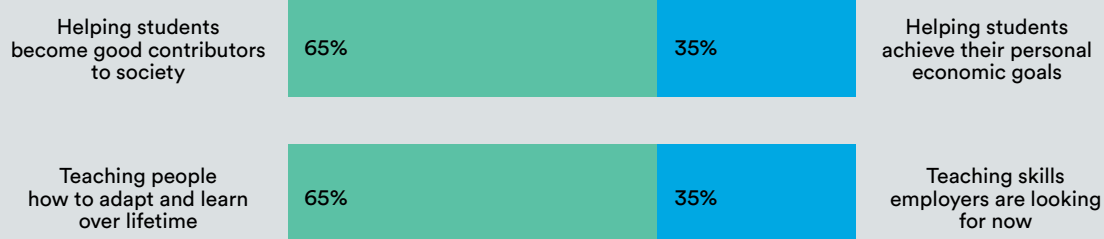
Methodology

The survey, commissioned by Universities Canada, was conducted online with 2,000 Canadians aged 18 and over from June 18 to 25, 2015. A random sample of panelists was invited to complete the survey from a large representative panel of over 500,000 Canadians, recruited and managed by Research Now, one of the world's leading providers of online research samples.

The Most Important Role of Universities

While a university education is expected to play a positive role in the economic future of students, when we test for the most important role of a university education, the majority see it as helping people adapt and learn over a lifetime, and be good contributors to society. Roughly a third feel that the most important role is helping students achieve their economic goals, and teaching skills employers are looking for now. Universities are seen to bring benefits to students, to Canadian society and to the economy.

Most important role for universities



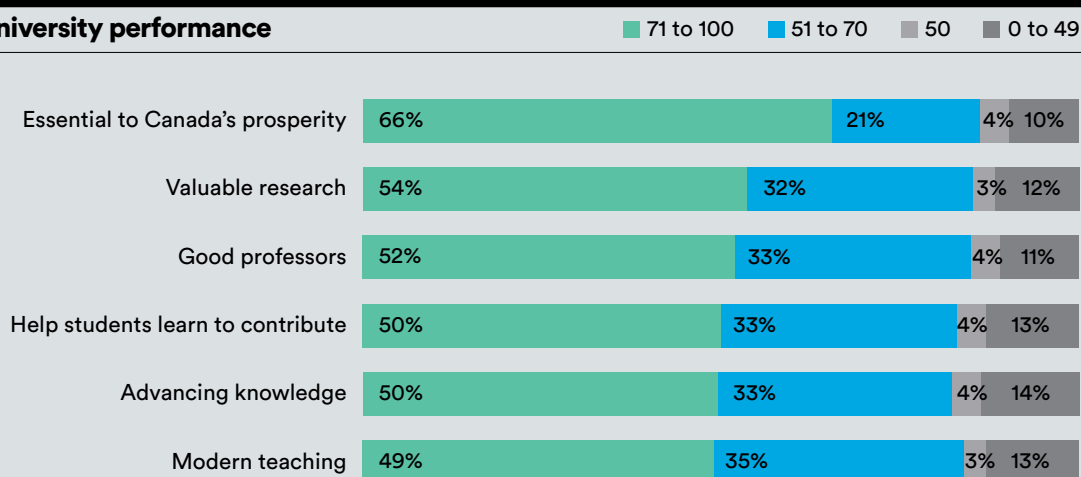
Survey question: When you think about post secondary education, what do you think is more important?

ABACUS DATA

University Performance

When asked to rate the performance of Canadian universities on a range of items, a large majority give them positive ratings when it comes to their impact on the economy, the value of the research they conduct, their teaching methods, and their ability to help students learn how to contribute to society.

University performance



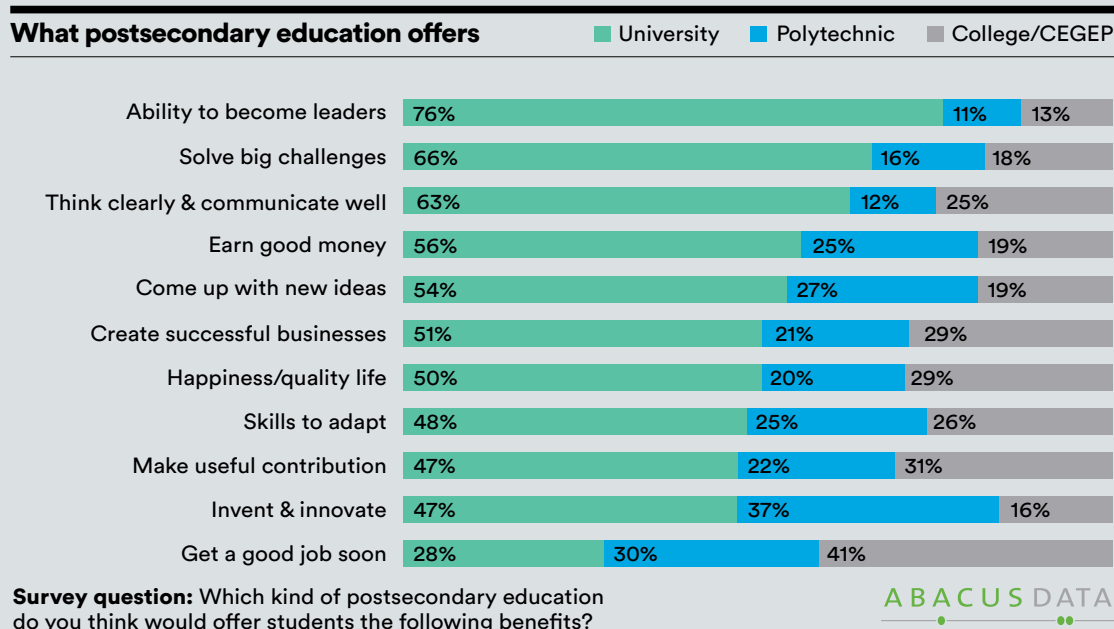
Survey question: Thinking just about Canadian universities, how would you rate their performance in each of the following areas?

ABACUS DATA

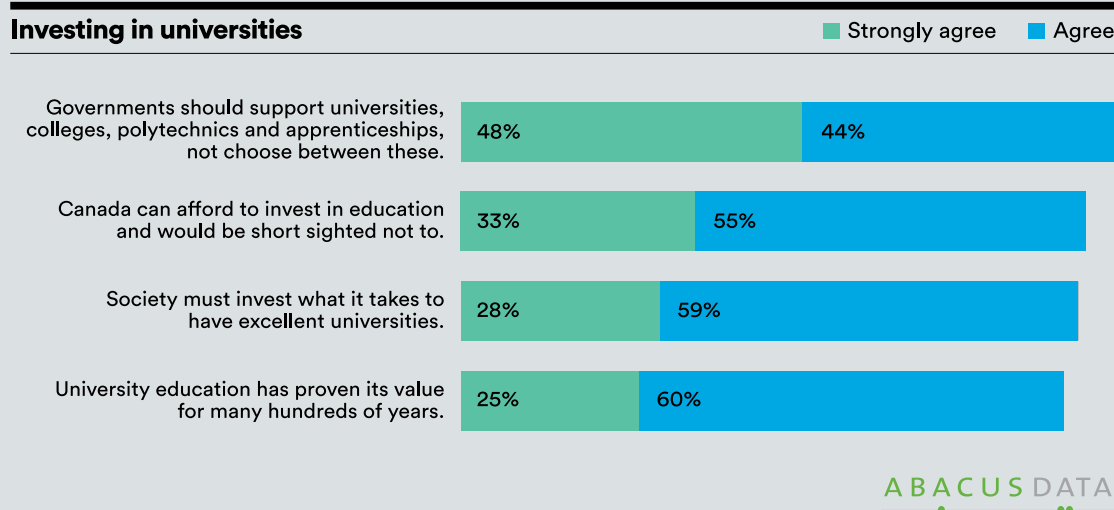
What Postsecondary Education Offers

Our research shows that the large majority (92%) of Canadians think governments should support a variety of forms of postsecondary education, not choose between these. Probing on the perceptions of different types of postsecondary education reveals that people see slightly different advantages for each.

Universities are seen as making a large contribution when it comes to helping solve big challenges, shaping leaders, and developing thinking and communications skills.



An overwhelming majority of Canadians also agree that governments should invest in universities, can afford to do so, and that universities provide good value for the money governments spend on them.



CONCLUSION

Canadians have a good impression of their universities and strongly believe that the country should continue to invest what it takes to offer world class education to our students. Most people see plenty of value in a variety of forms of postsecondary education and believe all merit policy support. **P**

Bruce Anderson is chairman of Abacus Research. banderson@anderson-insight.com

From STEM to STEAM: The Future of the Liberal Arts

Kevin Kee

The late Steve Jobs famously said, “It is in Apple’s DNA that technology alone is not enough—it’s technology married with liberal arts, married with the humanities, that yields us the results that make our heart sing.” While conventional wisdom dictates that today’s economy prefers STEM graduates, the University of Ottawa’s Kevin Kee presents a passionate case for STEAM.

My son Jacob is built for a Bachelor of Arts. Fascinated by what makes the world tick, he is interested in literature, communication, and environmental studies; math has never been, nor will it ever be, his “thing.” Nevertheless, as he contemplates how to spend his first four years at university, he feels compelled to study Engineering or Commerce. A Bachelor of Arts, according to some friends and teachers, will launch his career as a barista.

Jacob’s experience highlights a much larger issue. Canada needs more STEM graduates to remain at the forefront of technological progress—an argument I heard in the 1980s as I contemplated an undergraduate degree. But the conventional wisdom that science, technology, engineering, and mathematics equal ease with the tools of the 21st century while arts degrees do not is outdated, like the leg-warmers and popped collars of my teens.

Many liberal arts degrees now provide a well-rounded curriculum, and graduates are emerging with the soft skills that have symbolized the liberal arts—communication skills, critical thinking, creativity—as well as the ability to use computing tools and author code. STEM is becoming STEAM, arts being the inserted letter, which means Jacob will be able to use

his arts degree to tackle some of the biggest challenges of our day.

“ In 2016 we are producing information measured in zettabytes (a zettabyte is one trillion gigabytes—10 to the 21st power bytes). To put it another way, a single zettabyte would cover Tolstoy’s War and Peace (about 1,250 pages) at least 323 trillion times. ”

What are those challenges? Beginning my BA program in the late 1980s, I faced a scarcity of information and limited access to resources, forcing me to spend long hours in the library, where information was centralized. Jacob’s biggest problem is not scarcity; with the Internet as his library, his challenge is seemingly limitless information.

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stoy’s War and Peace (about 1,250 pages) at least 323 trillion times. Although a good chunk of this is pure amusement, like cats playing pianos, the Internet also houses much that falls under the umbrella of “research material,” with newly digitized forms of traditional research being uploaded every year. Google Books, for instance, is working to digitize every book published in modern history (approximately 130,000,000 books, according to Google)—work that may be completed within our students’ lifetimes, if not our own. But as documents become more readily and cheaply available, problems emerge for researchers in every domain.

Consider the challenges exemplified in the work of historians today. Dan Cohen, executive director of the Digital Public Library of America, notes that if a scholar wants to write a history of the Lyndon Johnson White House, she has to read and analyze the 40,000 memos issued during Johnson’s administration. This will take time, but it is possible. A historian wanting to write about the Clinton White House has, in addition to conventional administration documents, four million emails to address. It is impossible to read these in one lifetime. The Bush White House has 200 million emails. With such data, how do historians write the history?

Researchers in government and business are facing similar challenges. Reviewing the literature available on any given subject is becoming impossible because the amount of information that is being created about a subject is accumulating faster than we can read and understand it. We are drinking from a fire hose.

Fortunately, liberal arts scholars are imagining and creating new ways of

doing research: ways that recognize we cannot read all sources, because there are too many of them; ways that use the power of computers and the connectedness of the Internet, through feed readers, feed aggregators, crawlers, spiders, and bots, to automatically find and synthesize web content into a single report; and ways that can create indices, build concordances, and synthesize documents to ensure the most strategic text mining (see, for instance, Western University professor William J. [Bill] Turkel's research methods). Such methods will help Jacob read all 200 million emails from the Bush White House, or research any other subject his professor or—some day—employer requires.

“Reviewing the literature available on any given subject is becoming impossible because the amount of information that is being created about a subject is accumulating faster than we can read and understand it. We are drinking from a fire hose.”

The late David Foster Wallace told the story of two young fish swimming along, meeting an older fish swimming in the opposite direction. The older fish says, “Morning, boys. How’s the water?” The two young fish swim on for a bit but, eventually, one asks, “What the hell is water?”

In the 1980s, print to students like me was like water to fish: it was hard to imagine another way of producing knowledge. But for all that print offers, Jacob knows it is no longer sufficient. Almost all of us now use computers to facilitate our research, express our knowledge, and share it with others who, in turn, read and annotate it, on a screen.

Print also carries inherent limits.

Books and articles depict linear information well, but Bachelor of Arts programs are exploring additional media—digital maps, audio recordings, video reports, digital 3-D reconstructions—to convey knowledge for greater efficiency, accuracy, and interactivity. As a result, Jacob will be able to create and express knowledge in myriad ways.

When I was a student, the walls between the ivory tower and the “real world” felt thick. I researched and wrote in the privacy of a library or dorm room. In contrast, Jacob is a child of the Internet, a vehicle for both creation (at last count approximately 300 hours of video are uploaded to YouTube every minute) and relationship-building (every 60 seconds, almost 4.2 million “likes” are posted to Facebook). We live in what University of Southern California professor Henry Jenkins has called a “participatory culture:” lots of people connected with one another, creating content. And while much of it may be about musical cats, there’s thoughtful, important stuff in there, too: amateur science, fan fiction writing, citizen journalism.

James Paul Gee, a professor at Arizona State University, has called the producers of this kind of knowledge “professional amateurs:” citizen scholars who, though rarely credentialed or paid, are doing history, economics, or environmental studies because they love to. These curious, intelligent, motivated co-creators of knowledge are claiming expertise in areas where individuals and even groups of researchers might be lacking, and the social sciences and humanities—fields that explore culture, societies, and relationships—are especially fertile ground for crowd-sourcing knowledge.

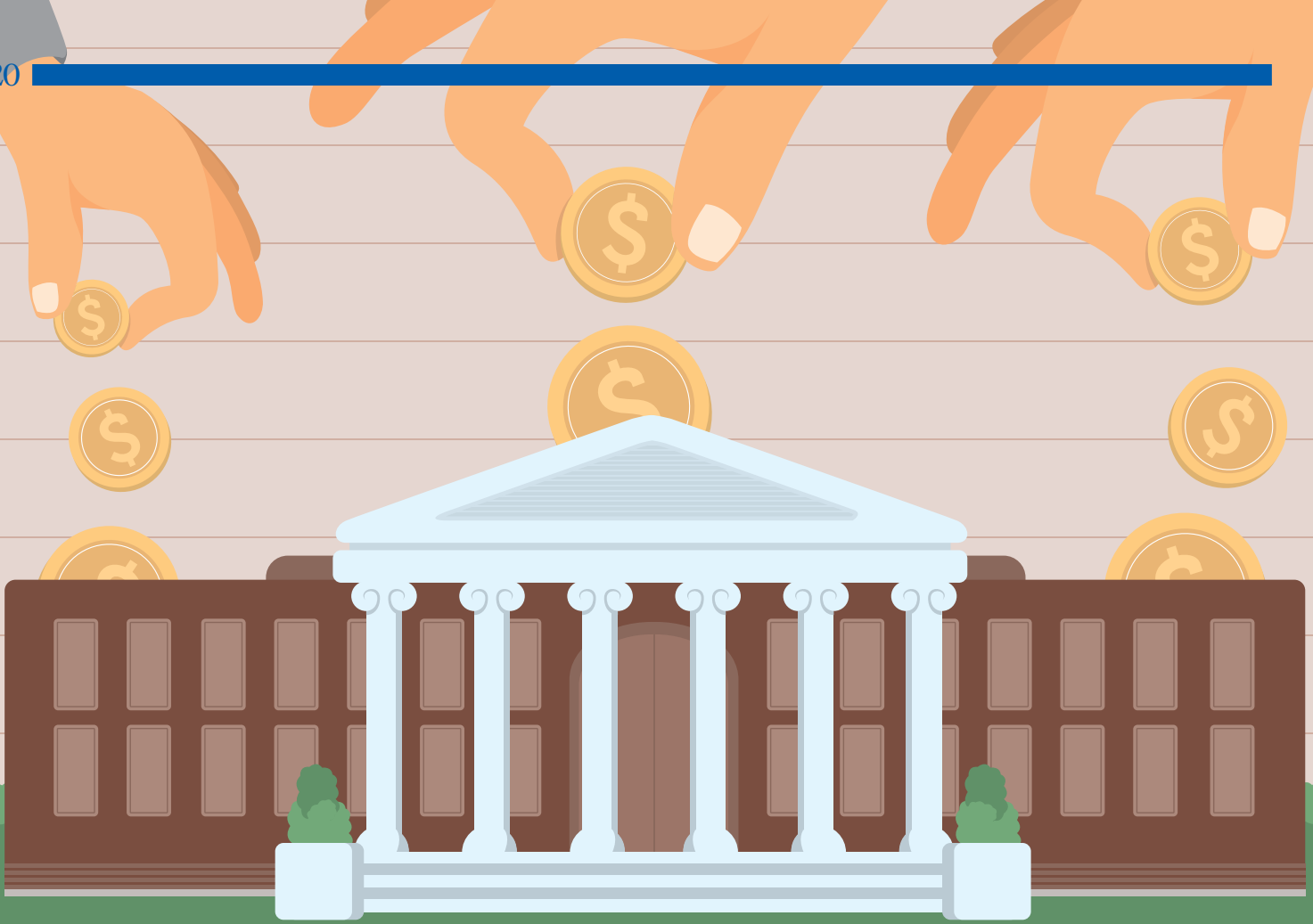
Consider, for example, that within days of the 2013 Boston Marathon bombings, humanities researchers and students at Northeastern University created *Our Marathon: The Boston Bombing Digital Archive*, allowing citizens to add pictures, videos, stories

and social media about the attacks; the result is both a crowd-sourced memorial and a repository upon which we can analyze how citizens respond to, and can be supported through, a terrorist attack. Such work creates new audiences while allowing for an enhanced relationship among communities and researchers. After all, “experts” are no longer mysterious wizards hidden in ivory towers; liberal arts professors are especially skilled, especially knowledgeable, engaged participants in the “real world.”

In 2016, liberal arts professors at my institution, the University of Ottawa, and elsewhere, await students such as Jacob with courses and programs that respond to the challenges and opportunities of the 21st century. We continue to champion the values and practices that have defined our disciplines for centuries, while at the same time working with the computer tools of the present. We conduct both a close analysis of our sources in libraries, and a distant reading of vast datasets on the internet. We write articles that are published in print, but we also communicate via digital maps, audio, video, and other forms of digital expression. We craft understanding alone in our offices, and share the results through long-established media outlets, but we also create knowledge in networks, in partnership with citizen scholars.

This new STEAM paradigm will ensure that Jacob thrives. He will learn to be a critical and creative thinker, and to communicate well in person, on the page, and on the screen. He will build cultural understanding, so that he can make sense of our increasingly interrelated world, and act upon it in imaginative ways. And these skills and knowledge, augmented through his training in the computing tools of 2016, will help him succeed at jobs in business, education, the not-for-profit sector, or government, that may not yet exist. **P**

Kevin Kee is Dean of the Faculty of Arts at the University of Ottawa.
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iStock photo.

Fundraising and Postsecondary Education—Have We Gone Too Far?

David Mitchell

It wasn't that long ago that the public perception of university presidents was a gauzy composite profile of wisdom, ivory towers and preternatural composure. Now, university presidents must be, above all, entrepreneurs. The competition for the best students, the highest rankings and the most sought-after researchers hinges on the overarching competition for money.

“Please don’t seat me next to a university president.”

This request—from private sector CEOs and senior public servants in particular—was often made of me during the years I spent convening leaders from all sectors at luncheons, dinners and special events. Their idea of more congenial company included anyone not preoccupied by the relentless pressure to fundraise and advocate for higher education.

It wasn't always this way. Business and government leaders used to relish the opportunity to meet with a university or college president. One former premier described inviting a university president to his home for dinner, not only for the benefit of stimulating conversation, but also to help persuade one of his children to consider the pursuit of an advanced education.

So how did we arrive at a place where fundraising, either of the philanthropic variety or in the form of government support, now assumes such a pre-eminent position in higher education? The answers can be found in public policy, trends in institutional governance and reputational competitiveness.

Universities and colleges are often referred to as "publicly funded" but it might be more accurate to describe them as "publicly supported."

While provincial governments remain the largest single funder of postsecondary education in Canada, most institutions receive as much or more of their total annual operating budgets from other sources, including tuition and other fees, research funding from public and private sources, and donations.

“There isn't really a Canadian system of higher education; rather, we have a number of provincial and territorial systems with little or no national coordination.”

Of course, funding varies across provinces and regions, with a patchwork of start-and-stop tuition freezes for students, unpredictable capital funding for infrastructure, and occasional salary freezes or caps for senior administrators. In this sense, there isn't really a Canadian system of higher education; rather, we have a number of provincial and territorial systems with little or no national coordination.

“How did we arrive at a place where fundraising, either of the philanthropic variety or in the form of government support, now assumes such a pre-eminent position in higher education? The answers can be found in public policy, trends in institutional governance and reputational competitiveness.”

One pan-Canadian trend, however, is clearly evident: all governments have struggled over the past generation, during an era of public-sector restraint, to find budgetary savings and efficiencies. This has necessarily inspired increasing resourcefulness and administrative innovations among our colleges and universities.

A good example can be found in the intensifying focus on research, spurred by the emergence of a willing partner in Ottawa. Canada is the only G7 country without a national department of education, and the federal government has been historically reluctant to tread on provincial jurisdiction, although it has provided funding for research. However, almost two decades ago, Jean Chretien's Liberal government initiated a major expansion of research funding, launching the Canada Research Chairs, creating the Canada Foundation for Innovation and the Millennium Scholarships, and significantly increasing support for federal funding councils.

This was by far the most significant education policy accomplishment of the Chretien years, with billions of dollars of new funding flowing primarily to Canadian universities. Recently, some of those federal dollars have been distributed more broadly, including to colleges focused on applied research.

This important and continuing intervention by Ottawa has had a number of consequences. Some of our larger institutions have grown exponentially, becoming powerful research-intensive machines, focused more, it seems, on research imperatives than

traditional mandates for undergraduate education.

In addition, federal research funding has often leveraged additional support from wealthy Canadians, the private sector and large global foundations. In fact, we have frequently seen a direct correlation between the momentum provided by increased research funding and a rise in philanthropic support for many postsecondary institutions in Canada.

Even as provincial governments have pulled back their funding, enrolments have generally continued to rise, along with a corresponding increase in fund development capacity. Indeed, a big part of the story of Canadian post-secondary education in recent years has been the significant increase in fundraising prowess.

A number of large Canadian universities are now attracting levels of philanthropic support similar to the big US state universities. And Canadian fundraising for advanced education is well ahead of the UK and other countries. Consider the growing number of billion-dollar fundraising campaigns, starting with the University of Toronto more than a decade ago and now including UBC, McGill, the University of Alberta and the University of Calgary.

Critics of these massive campaigns compare them to large vacuum cleaners, sucking up most of the prospective donations in their regions, leaving little support for other organizations. However, we have recently seen an impressive growth in fundraising activities by smaller, more agile institutions with significant community connections, offering

practical training and relevant skills for local labour markets. Clearly, there's room for successful fundraising at a number of different levels.

What's in it for donors? They're often motivated by the exhilaration of giving and the desire to put their money to good use. They should be roundly applauded for their inspirational support of students, academic programs, infrastructure and research.

The changing nature of philanthropy, however, suggests that a reconsideration of these relationships is in order if they're to lead to successful, sustainable fund development. Many of today's donors are seeking a different kind of engagement with the institutions they support, wanting to better understand whether and how their donations are truly making a difference.

It's worth noting that fund development still makes up a relatively small percentage of the total revenue available to postsecondary educational institutions in Canada. Nevertheless, because operating budgets are largely restricted and allocated to fixed costs, fundraising often provides a small amount of crucial flexibility for stra-

tegic priorities. As a result, the impact of fundraising is disproportionately influential.

Presidents of Canadian universities and colleges are now being hired partly for their fundraising ability, now deemed an essential leadership skill. Indeed, presidents are the *de facto* chief fundraisers for their institutions, expected to cultivate and steward top donors and held accountable for overall fundraising performance, including the achievement of specific targets. Likewise, the reputation and brand of a post-secondary institution is increasingly shaped by its ability to attract philanthropic support.

Have we gone too far? Has fundraising now been elevated to such an exalted status that it has effectively hijacked the mission of advanced education in Canada?

Surely, there's a better way to engage graduates of Canadian institutions.

Fundraising is obviously important—but not an end in itself. The mandates of Canadian universities and colleges are shaped by important relationships with governments, private sector partners, alumni and

others. Successful fund development is less a driver of these relationships than it is a by-product. The ambitious goals of large-scale capital campaigns are achieved not by numerous donations but, rather, by genuine, sustainable relationships designed to endure and flourish.

Presidents of post-secondary educational institutions are among the smartest and most engaging leaders in our country. Perhaps they should be less poised and prompted for the next fundraising “ask” and more sincerely interested in building lasting relationships with leaders from other sectors who have the potential to become allies in advancing strategic goals and objectives.

In the process, they just might render themselves more desirable dinner companions. **P**

Contributing Writer David Mitchell, a former member of the B.C. Legislature, served as chief fundraiser for three Canadian universities, and as President and CEO of the Public Policy Forum. He is currently Chief External Relations Officer of Bow Valley College in Calgary. dmitchell@bowvalleycollege.ca

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Is a Tech Supercluster Possible in Canada?

Kevin Lynch

Governments around the world have expended considerable energy in the past two decades trying to replicate the perfect storm of academic, industrial, intellectual and quality of life variables that produced the innovation Mecca of Silicon Valley. While Canada has made strides toward creating a domestic Austin, Bangalore or Sydney, our standing in rankings of superclusters has stalled. BMO Financial Group vice-chair and former clerk of the Privy Council Kevin Lynch has a prescription for rectifying that.

It is September and hundreds of thousands of students are streaming into Canadian universities, carrying their dreams and our future. It is a time of anticipation and angst, and not just for students.

The questions we should be asking ourselves are challenging: Will our universities find the quality and quantity of students they seek? Will our businesses find the entrepreneurial, creative, resilient and skilled graduates they need? Will our students find the jobs they want and are trained for? Will we retain our best graduates or lose them to other countries? Will we attract great minds from around the world?

The common denominator in all this is talent—the basic fuel of a knowledge-intensive, innovation-driven economy. Canada's tech and innovation talent needs are multifaceted—more depth in STEM, more scope in global marketing, more experience in CO-OP, more coding skills in all disciplines, more exposure to entrepreneurial cultures, and more interdisciplinary teamwork and cross-fertilization. And such talent tends to congregate in clusters and for good

reason, drawing energy, ideas, capital, and culture from each other—much like the craft guilds of old.

“Canada now has an extensive array of innovation incubators, and in all provinces. Even better, we have four Canadian centres—Toronto, Vancouver, Montreal and Waterloo—among the global top-25 in the COMPASS 2015 start-up ecosystem rankings.”

Innovation ecosystems translate knowledge, research and technology into innovative business ideas and commerce. After a slow start, Canada now has an extensive array of innovation incubators, and in all provinces. Even better, we have four Canadian centres—Toronto, Vancouver, Montreal and Waterloo—among the global top-25 in the COMPASS 2015 start-up ecosystem rankings.

But before we take a victory lap, the

start-up ecosystems that registered the largest declines between the 2012 and 2015 COMPASS rankings included Vancouver, Toronto and Waterloo, while centres as disparate as Austin, Singapore, Berlin and Bangalore made great strides upwards in the rankings. Waterloo, while exhibiting above average start-up growth performance, was penalized in the rankings for its relatively small size.

Why pretty good is unlikely to be good enough is underscored by American analysis suggesting that the economic gains (IPOs, exits, venture capital financing, valuations) go disproportionately to the dense and deep top-tier ecosystems. According to COMPASS research: “Over the coming years, we expect Silicon Valley to stay in the lead, capturing 30-50 per cent of the total exit pie, the next three start-up ecosystems capturing an additional 30-50 per cent of the pie and the following top 16 start-up ecosystems capturing the remaining 20 per cent of the total exit pie.” In short, if you don't own a piece of the podium, the global start-up pickings are rather thin and building a herd of gazelles is more wishful thinking than analytic planning. And, Canada's “not good enough” grade is only reinforced by our 24th ranking on innovation in the World Economic Forum's Global Competitiveness Index and our 22nd position for business spending on R&D among all OECD countries.

The top tier “super innovation ecosystems” share several core attributes: an entrepreneurial culture where geeks are gods; deep talent pools that draw from around the world; great research uni-

Chart 1: The 2015 COMPASS Global Ranking of Innovation Ecosystems

2015 Ranking*	Ecosystem	Change in Rankings from 2012
1	Silicon Valley	-
2	New York City	+3
3	Los Angeles	-
4	Boston	+2
5	Tel Aviv	-3
6	London	+1
7	Chicago	+3
8	Seattle	-4
9	Berlin	+6
10	Singapore	+7
11	Paris	-
12	Sao Paulo	+1
13	Moscow	+1
14	Austin	New
15	Bangalore	+4
16	Sydney	-4
17	Toronto	-9
18	Vancouver	-9
19	Amsterdam	New
20	Montreal	New
:	:	:
24	Waterloo	-9

* The methodology for the ranking index is composed of **performance** (value of the ecosystem) weighted at 30%; **funding** (aggregate VC investment) weighted at 25%; **market reach** (% of foreign customers and funders) weighted at 20%; **talent** (quality, availability, cost) weighted at 15%; and **experience** (% employing best start-up practices) weighted at 10%.

versities that interact with the surrounding environment; abundant risk capital, both angel and venture capital; enormous scalability of new innovations; and the brand power to continually refresh themselves from globally mobile talent and capital.

As the federal government consults on what a national innovation strategy should look like and where it might place its “big bets”, a key question to be asked is whether we can build a top global tech supercluster in Canada, and equally whether we can afford not to. In this context, the Toronto-Waterloo Corridor car-

ries the unique potential for Canada to develop a top-five global tech supercluster. It has most of the ingredients: population size (over 6 million), strong research universities and colleges (University of Toronto, Waterloo, McMaster and Guelph, among others, anchor the corridor), vibrant immigration, a major international airport, a global financial centre, and two innovation ecosystems ranked in the top-25 globally. The opportunity is to make the whole of the Toronto-Waterloo innovation corridor much greater than the sum of its parts; the challenge is that it takes more than

geography and statistics to build an innovation super ecosystem.

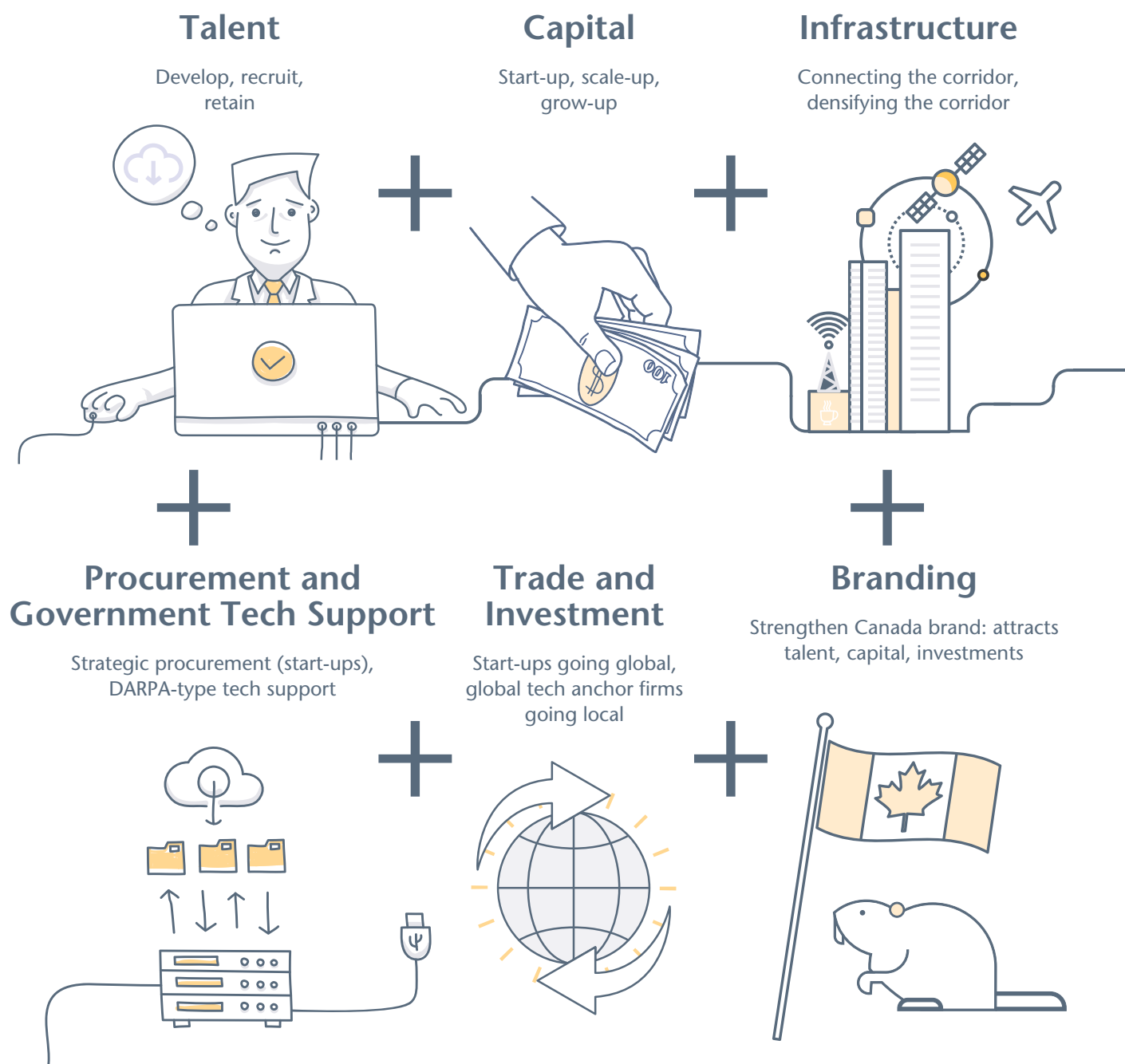
“As the federal government consults on what a national innovation strategy should look like and where it might place its “big bets”, a key question to be asked is whether we can build a top global tech supercluster in Canada, and equally whether we can afford not to.”

The COMPASS analysis of the strengths and weaknesses of the Waterloo innovation ecosystem provides some useful clues to tackling the challenge. According to COMPASS, the pillars of Waterloo’s success are “top technical talent, a deep sense of community, and the unmatched co-operation and coordination between stakeholders,” combined with a co-op program where students graduate with two years of relevant work experience and a strong entrepreneurial and problem-solving mindset that sets it apart. The Waterloo challenges are impediments to dynamic scaling, weakness in “going global” to support growth, relatively small market size, and a funding gap in the availability of “seed funding” compared to top global innovation ecosystems.

Within the Toronto-Waterloo corridor, we already produce superb technical talent, creative ideas, and entrepreneurs. They have repeatedly shown they can build game-changing technology right here at home. But to capture the full potential of the Toronto-Waterloo innovation corridor, we must think transformatively—not incrementally—not be risk averse and create global buzz by the very boldness of the vision.

Building a top-five innovation supercluster requires bold leadership from

Chart 2: Building Blocks for a Global Top-5 Toronto-Waterloo Innovation Ecosystem



government, the private sector and universities, buttressed by the ambition and confidence that we can take on the world and win.

So what are the building blocks that could turn the Toronto-Waterloo Corridor into a global top-five innovation ecosystem? Chart 2 sets out schematically six building blocks to the podium: talent, capital, infrastructure, procurement and government tech support, trade and in-

vestment, and branding. While not uniquely applicable to the Toronto-Waterloo corridor, a coordinated set of initiatives across these six building blocks would have a major multiplier impact on the corridor.

Clearly, *talent* is key: we have to develop more, attract more and retain more. On the development side, we need more STEM graduates, more graduates with a global sales and marketing training, more co-op edu-

cation and more co-op partnerships across universities in the corridor, and more involvement of business in dual vocational training models with colleges in the corridor. On the recruitment side of talent is a combination of branding and opportunity. With Brexit and a divisive public discourse in the United States, there is an unparalleled opportunity to burnish the Canada brand in these markets (and globally), and to use it more concertedly to market the strength of

the Canadian higher education system. This would enhance the capacity to attract students, researchers and entrepreneurs to the corridor.

On the retention side, the buzz of a dynamic corridor with more start-ups and more opportunities is itself a key element, but co-op and earlier associations between prospective employees and employers and globally competitive job offers are also part of the retention mix.

A crucial enabling policy initiative to leverage talent attraction is a “*global talent/skills visa*” that would allow Canadian companies and institutions to recruit world-class talent through a streamlined process that provides responses faster than our main talent competitor, the US, say with three weeks as a benchmark.

On the infrastructure front, the objective is an intensely connected corridor. This clearly requires rapid rail, and the recent announcement by the province of Ontario, Metrolinx and CN, hopefully complemented by federal infrastructure support, is a major step forward. But while necessary, it is neither sufficient nor leading-edge. A dedicated bus lane on the highway, combined with regulatory approval for an Autonomous Vehicle lane, rapid air service between Toronto Island Airport and Waterloo and ultra-high speed internet would all build world class connectivity in the corridor.

Governments can play an important role on both the scale-up and financing fronts through strategic procurement for innovative start-ups/SMEs. It is extremely difficult today for start-ups to sell their products and services to either federal or provincial governments given the high degree of risk-aversion built into procurement processes. The same can be said with respect to procurement by large established Canadian corporations. This makes it hard to sell abroad if you cannot show sales at home, and it makes bank financing less likely without receivables.

“Over the past quarter-century, Canada has demonstrated an impressive capacity to adapt well to a changing world; over the next decade we are going to be tested by unprecedented shifts in demographics, global connectivity, climate change, technological change, slowing productivity and volatility.”

Governments around the OECD are rethinking the concept of industrial policy, shifting more to a technology focus rather than traditional sectoral approaches. The federal government should consider developing a civilian DARPA-type technology support vehicle that, like the longstanding Defence Applied Research Program Administration models in the United States and Israel, can greatly assist moving leading edge basic research towards applied technologies that can solve classes of problems and are available to entrepreneurs and start-ups to turn into commercial applications.

The federal (and provincial) governments, in conjunction with research universities and others, should also consider making some big research/technology bets that will create critical research mass in high-risk, high-return areas. Examples could include quantum technologies, artificial intelligence, aspects of medical research, advanced manufacturing, etc. The Perimeter Institute for Theoretical Physics is a great example of a successful big bet.

Following on from the COMPASS analysis of the core attributes of top-tier innovation ecosystems, we need targeted trade initiatives in support of start-ups going global (this could be a combination of the trade commissioner service, and Export Development Canada) and investment attraction “campaigns” to lure global high tech anchor firms to locate in the corridor with global mandates—here, Google in Waterloo is a strong exemplar.

Then there is the COMPASS observation that we face a “funding gap”

relative to top-tier ecosystems. The challenge here is not a paucity of proposals but a choice of where to get the greatest leverage at the least fiscal cost with the lowest risk of unintended consequences. Possible initiatives that deserve more consideration are: angel investor tax credits; matching programs for VC and angel investments; dedicated BDC office in the Corridor; DARPA-type program among others.

To conclude, the challenge for Canada is going from good to great. Building a global top-five innovation ecosystem can and should be part of this transition.

Over the past quarter-century, Canada has demonstrated an impressive capacity to adapt well to a changing world; over the next decade we are going to be tested by unprecedented shifts in demographics, global connectivity, climate change, technological change, slowing productivity and volatility. The status quo is not a model for future success in this rapidly changing world if our objective is to restore Canada’s growth potential and improve the prosperity prospects of the next generation. There is no reason why Canada cannot be an innovation leader provided we are willing to aim for the podium, not just for participation. A top-tier tech supercluster would move us smartly in this direction. **P**

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Partout au Canada, les étudiants participent à de la recherche de pointe dans des laboratoires modernes. Photo : Simon Fraser University.

Science, technologie, société: Les universités au cœur de l'innovation

Robert Proulx

Les universités canadiennes jouent un rôle de premier plan dans le développement d'un système d'innovation dynamique, apte à assurer l'avancement social, économique et culturel du Canada. En effet, s'il est un lieu qui rassemble les ingrédients essentiels à l'innovation—nouveaux savoirs, confrontation d'idées, recherche de solutions, inventivité—c'est bien cette institution à nulle autre pareille. Pour relever les défis d'aujourd'hui et de demain, le Canada doit impérativement miser sur ses universités. Concrètement, cela signifie adopter une vision plus globale de l'innovation et surtout, soutenir la recherche dans tous les domaines de la connaissance.

Le développement du Canada est plus que jamais tributaire de sa capacité à innover. Plaçant l'innovation au cœur des stratégies visant à assurer la prospérité économique du pays, le gouvernement fédéral investit depuis quelques années des sommes de plus en plus considérables dans des recherches appliquées à fort potentiel économique, susceptibles de maintenir et d'accroître la compétitivité des entreprises canadiennes dans un marché mondialisé.

Bien que les retombées de ces investissements soient indéniables, on ne saurait réduire l'innovation à sa seule dimension économique. Son rôle est à

vrai dire encore plus fondamental, car même l'invention technologique la plus pointue ne sera pas source d'innovation si elle n'induit pas une transformation des pratiques sociales.

La dimension sociale de l'innovation se révèle avec encore plus d'acuité lorsqu'on considère les nombreux enjeux qui marquent le XXI^e siècle. Du réchauffement climatique au phénomène de la radicalisation, du vieillissement de la population à la réconciliation avec les peuples autochtones, ces défis demandent en effet des solutions novatrices qui ne sont pas nécessairement créatrices de valeur économique, mais qui sont néanmoins cruciales au développement des sociétés.

C'est pourquoi le gouvernement doit adopter une perspective plus large, qui place la finalité sociale de l'innovation au cœur de son déploiement. Une telle vision est une condition essentielle à la capacité du Canada à assurer son avenir.

Pour concrétiser cette vision, l'apport des universités canadiennes est primordial. Par leur ancrage dans leur milieu et leur ouverture sur le monde, par les recherches appliquées et fondamentales qu'elles mènent et par les savoirs qu'elles développent, elles sont le principal point de convergence des forces qui permettront au Canada de disposer d'un système d'innovation dynamique, capable d'aider nos communautés à relever les défis collectifs et à bâtir la société de demain.

“ Qu'il s'agisse d'un produit, d'une technologie, d'un service ou d'une politique, l'innovation transforme les usages sociaux. ”

Pensée comme source du progrès social, l'innovation est une rupture, une réponse nouvelle, bien souvent inattendue et parfois audacieuse à un

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besoin. Qu'il s'agisse d'un produit, d'une technologie, d'un service ou d'une politique, l'innovation transforme les usages sociaux. Le processus d'innovation résulte habituellement d'une collaboration entre divers acteurs qui mettent en commun leur connaissance et leur savoir-faire. Voilà autant de caractéristiques que partage l'université et c'est pourquoi cette institution est un acteur incontournable de l'innovation.

Financées à même les fonds publics, les universités canadiennes sont un bien collectif qui profite, directement ou indirectement, à toute la société. Une telle conception de l'université suppose que son rôle premier—la conservation, la production, la transmission et la diffusion des connaissances—relève d'une mission scientifique, mais aussi sociale. Contribuer au développement scientifique, culturel et économique ainsi qu'au mieux-être des collectivités est donc une des activités constitutives de la mission universitaire. Par leurs activités de formation, de recherche et de création, elles développent une culture du savoir qui permet non seulement de penser le monde, mais aussi de le transformer et de le réinventer.

Pour y arriver, les universités jouissent d'une longue tradition en matière d'ouverture sur le monde. Elles ont multiplié les collaborations avec différents partenaires de la société—que ce soit avec les entreprises ou encore avec les milieux culturels, sociaux et éducatifs—favorisant ainsi la mobilisation des connaissances. Cette rencontre entre les demandes du milieu et le monde universitaire, entre les savoirs théoriques et pratiques, est essentielle à l'émergence

de solutions originales et novatrices qui répondent aux enjeux actuels.

À cet enracinement local, s'ajoute une dimension internationale tout aussi cruciale à l'innovation. Les chercheurs canadiens sont intégrés dans une multitude de réseaux de recherche internationaux qui leur permettent d'être à la fine pointe du savoir. Alors que nombre d'enjeux actuels—les changements climatiques, les droits humains, le maintien de la paix ou l'accroissement des inégalités sociales pour ne nommer que ceux-là—transcendent les frontières géopolitiques et demandent des efforts concertés, ce partage de connaissances à l'échelle mondiale est indispensable.

Ce double ancrage local et international fondé sur la diversité des relations qu'elles tissent avec leur communauté confère aux universités une position unique pour être des vecteurs d'innovation.

Les universités sont des lieux d'effervescence intellectuelle, d'invention, d'imagination, d'audace. En repoussant toujours plus loin les frontières de la connaissance, en remettant en question les idées reçues, en explorant des champs de recherche originaux, en combinant les approches d'une variété de disciplines, les universités sont un réservoir inépuisable d'expertises et d'inventivité dont on sait qu'ils sont au cœur du processus d'innovation.

L'innovation, qu'elle soit scientifique, technologique ou sociale, n'est pas un processus linéaire. On ne peut ni la prévoir, ni la programmer, ni la planifier. Elle est le fruit d'avancées et de reculs, d'essais et d'erreurs, de réussites et d'échecs. Elle découle parfois du hasard, parfois d'une combi-

raison inattendue de savoirs anciens et nouveaux, parfois d'une rencontre fructueuse de chercheuses, de chercheurs issus de disciplines n'ayant pas l'habitude de dialoguer entre elles. Elle surgit bien souvent là où on s'y attend le moins.

Un système d'innovation robuste suppose donc que ses acteurs aient toute la latitude nécessaire pour poursuivre des recherches et des travaux dont on ne saisit pas d'emblée le potentiel, mais qui sont susceptibles de contribuer à répondre aux enjeux de demain. La liberté académique et l'autonomie universitaire confèrent aux universités et à leurs chercheurs cet espace unique qui leur permet de mener des recherches désintéressées, dont les retombées ne sont pas immédiatement perceptibles.

“ **Les universités canadiennes ont donc tous les atouts pour jouer un rôle de premier plan en matière d'innovation. En collaborant avec les acteurs sociaux et en mettant à profit leurs savoirs et leurs expertises, elles peuvent éclairer les décideurs en matière de politiques éducatives, culturelles, économiques ou sociales.** ”

Les universités canadiennes ont donc tous les atouts pour jouer un rôle de premier plan en matière d'innovation. En collaborant avec les acteurs sociaux et en mettant à profit leurs savoirs et leurs expertises, elles peuvent éclairer les décideurs en matière de politiques éducatives, culturelles, économiques ou sociales. Elles peuvent également aider les communautés locales à faire face aux défis qui leur sont propres, contribuer à trouver des solutions novatrices aux grands enjeux transnationaux. Elles



« Lieux d'effervescence intellectuelle, d'invention, d'imagination, d'audace », les universités sont au cœur de l'innovation. Photo : Universités Canada.

peuvent enfin, bien sûr, favoriser le développement économique.

Toutefois, pour que ce potentiel puisse porter tous ses fruits, il faut un engagement clair de toutes et de tous. Un engagement des universités elles-mêmes d'abord. Celles-ci doivent placer leur mission sociale au cœur de leur planification stratégique. Elles doivent continuer à s'ouvrir à leurs milieux et à collaborer entre elles de façon à garder bien vivante la culture de l'innovation qui les caractérise.

Le gouvernement doit pour sa part faire preuve de *leadership* en faisant de l'innovation une priorité nationale et en reconnaissant le rôle fondamental qu'y jouent les universités canadiennes. Il doit concevoir l'innovation comme la clé du développement non seulement de la croissance économique, mais également du mieux-être de toute la société. Il doit adapter ses politiques en conséquence et fournir aux universités toutes les ressources nécessaires au développement d'un sys-

tème d'innovation fort. Cela signifie de continuer à soutenir la recherche appliquée, certes, mais également et surtout d'investir de façon accrue en recherche fondamentale. Dans les deux cas, il faut également soutenir des domaines, les sciences humaines et les arts notamment, dont la contribution à l'innovation reste fondamentale même si elle n'est pas toujours tangible. Il s'agit d'une condition *sine qua non* à la capacité du Canada d'assurer son avancement collectif. **P**

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Science, Technology, Society: Universities at the Forefront of Innovation

Robert Proulx

Canadian universities play an instrumental role in developing a dynamic innovation system to provide for Canada's social, economic and cultural advancement. Universities above all others are institutions that nurture the key ingredients of innovation: acquiring new knowledge, comparing ideas, seeking solutions, fostering inventiveness. As Canada strives to address the challenges of today and tomorrow, it must be able to rely on its universities. This means adopting a more global view of innovation and, first and foremost, supporting research across all fields of knowledge.

Now more than ever, Canada's development is contingent on its capacity for innovation. The federal government has placed innovation at the core of its strategy to ensure the country's economic prosperity. For several years, it has been investing increasingly significant sums in applied research with strong economic potential—research which is likely to maintain and increase the competitiveness of Canadian businesses in a globalized market.

Although the economic impact of these investments is undeniably beneficial, innovation cannot be reduced to economics alone. It plays a much more fundamental role. Even the most advanced technological invention cannot be a source of innovation if it fails to prompt some transformation of social practices.

The social dimension of innovation is even more striking when we consider

the many issues that mark the 21st century. From global warming to the phenomenon of radicalization, and from population aging to the ongoing reconciliation with First Nations, these challenges require innovative solutions that may not necessarily create economic value but which remain critical for societal development.

In light of these issues, the government must adopt a broader perspective that places the social purpose of innovation front and centre. Such a vision is critical to Canada's ability to secure its future.

In order to realize this vision, the contribution of Canadian universities is key. Universities are rooted in their communities, they are windows to the world, they conduct applied and fundamental research and they develop knowledge. Our university campuses are the main point of convergence for the forces that will arm Canada with a dynamic innovation

system to help our communities face collective challenges and build the society of tomorrow.

Innovation is a breakthrough that leads to social progress—it is a new, often unexpected and sometimes bold response to a need. Whether it comes in the form of a product, technology, service or policy, innovation transforms social mores. The innovation process usually results from the cooperation of various actors who pool their knowledge and expertise. Universities inherently share all these characteristics, making these institutions key players in innovation.

“ Although the economic impact of these investments is undeniably beneficial, innovation cannot be reduced to economics alone. It plays a much more fundamental role. Even the most advanced technological invention cannot be a source of innovation if it fails to prompt some transformation of social practices. ”

Canadian universities are publicly funded. They are a common good that directly or indirectly benefits all of society. This means that their primary role, i.e. preserving, creating, transferring and disseminating knowledge, is both a

scientific and social mission. Accordingly, a key element of the university mission is to contribute to the scientific, cultural and economic development and well-being of communities. Through their training, research and creation activities, universities develop a culture of knowledge where we not only think about the world, but also transform and reinvent it.

Universities enjoy a long tradition of being gateways to the world. They cooperate frequently with diverse partners—businesses, for example, or cultural, social and educational communities—thereby promoting the mobilization and pooling of knowledge. This interaction between the needs of the community and academia, between theoretical and practical knowledge, is essential for the emergence of original, innovative solutions that address today's challenges.

“Whether it comes in the form of a product, technology, service or policy, innovation transforms social mores.”

While embedded in their communities, universities are also globally connected. This international dimension is equally critical for innovation. Canadian researchers are involved in a multitude of international research networks that place them at the forefront of knowledge. Given that many of today's issues—climate change, human rights, peacekeeping and mounting social inequality, to name only a few—transcend geopolitical boundaries and require concerted efforts, this global knowledge sharing is vital.

These local and international roots, founded on the diverse relationships that universities build with their communities, position the academic world as a unique and effective vehicle of innovation.

Universities are places where critical thinking, invention, imagination and daring flourish. By continuing to push the boundaries of knowledge, challenging accepted notions, exploring original fields of research and combining approaches from various disciplines, universities are an inexhaustible source of the expertise and creativity that are central to the innovation process.

Innovation, whether scientific, technological or social, is not a linear process. It cannot be predicted, programmed or planned. It is the product of progress and setbacks, trial and error, successes and failures. It may result from an accident, an unexpected combination of old and new knowledge, or a fruitful encounter between researchers from disciplines that do not usually work closely with each other. It often comes from where we least expect it.

A robust innovation system relies on its actors being free to pursue research and work whose potential cannot be immediately grasped but is likely to help respond to tomorrow's needs. Academic freedom and university autonomy give universities and researchers a unique space to perform impartial research whose impacts are not immediately apparent.

“Canadian universities are fully equipped to play a central role in innovation. By working with social actors and leveraging their knowledge and expertise, they can inform decision-makers about educational, cultural, economic or social policies.”

Canadian universities are fully equipped to play a central role in innovation. By working with social actors and leveraging

their knowledge and expertise, they can inform decision-makers about educational, cultural, economic or social policies. They can also help local communities overcome the challenges they face and find innovative solutions to major transnational issues. And of course, let us not forget that universities are eminently positioned to promote economic development.

For the academic world to fully realize this potential, however, a clear commitment is required from all involved. First, we need universities themselves to commit to putting their social mission at the heart of their strategic planning. They must continue to open up to their communities and work together to keep their distinctive culture of innovation alive.

For its part, the government must demonstrate leadership by making innovation a national priority and recognizing the fundamental role played by Canadian universities. It must regard innovation as the key to not only economic growth, but also the well-being of society as a whole. It must adapt its policies accordingly and provide universities with the wherewithal to develop a strong innovation system. This means continuing to support applied research, of course, but especially investing more heavily in research. In both cases, we also need to support the fields of knowledge, including humanities and the arts, whose contribution to innovation is vital, if not always tangible. This is a prerequisite for Canada's collective advancement. **P**

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UBC President Santa Ono. An “accessible, bow-tie wearing peacemaker with 74,000 Twitter followers.” Paul Joseph/UBC photo.

Can the Role of University President Really Be that Easy?

Julie Cafley

In an age of instant social media infamy, when every moment a university president spends managing the hourly crises that come with managing a small city full of academic egos, newly liberated youth, overworked staff and demanding parents can ignite into a career-ending Twitter storm, character counts. Julie Cafley writes that UBC’s Santa Ono may have the job down.

Could Dr. Santa Ono really turn the oft-failed job of a Canadian university president into a campus stroll on a sunny day?

Ono is just beginning his mandate as UBC’s 15th president, yet he is already doing the one thing that few Canadian university presidents have been able to accomplish to date. He’s looking in control of the situation, easing his way through the preliminaries of a job that is as impossible as it is prestigious.

After months of media commentary and critique, of outrage and anger, of frustration and embarrassment over a UBC presidential appointment that lasted just over a year, the news of Ono's appointment is being met with unmitigated praise and excitement in Vancouver, and across the country. The mood on campus, the media commentary, and the Twittersphere is forward-looking and positive. And the applause isn't even tentative. Meanwhile, students, faculty, parents, and community members in Cincinnati, where Ono had been both provost and president of the University of Cincinnati over the past six years, are publicly airing their sadness and disappointment over his imminent departure.

So, who is this accessible, bow-tie wearing peacemaker with 74,000 Twitter followers? Ono's keen understanding of universities, his skills, abilities and background, and his optimistic approach are a welcome refresh to the Canadian university landscape. In recent years, the role of Canadian university president has often looked—and for many, felt—like a slog. Over the past decade, no less than 18 presidents have departed their jobs prior to the expiry of their terms and, in many cases, within a year or two of assuming office.

So, is this too good to be true? What's his secret ingredient? When examining Ono's leadership, albeit from a distance, within the lens of my research on unfinished mandates of Canadian university presidents, it paints a telling picture of Ono's unique approach to university leadership and governance. And, unlike many aspects of the academy, it actually seems quite simple.

1) Ono has social capital. In spades. Ono is from Vancouver, a Canadian coming home. He is an academic, a musician, and a scientist. He has a PhD in Experimental Medicine from McGill, and has studied at Harvard, and the University of Chicago. He has solid research credentials, advancing important work in the area of age-

“Ono's keen understanding of universities, his skills, abilities and background, and his optimistic approach are a welcome refresh to the Canadian university landscape. In recent years, the role of Canadian university president has often looked—and for many, felt—like a slog.”

related macular degeneration. He is a proven provost and a celebrated university president. Within a campus community, all of these factors create an important level of credibility and build trust. He connects with many stakeholders in a very natural way. He is seen as “one of us” from the outset. This opens the way to strong and deep campus relations. He values the role of relational leadership and is exceptionally apt at maintaining networks and communicating with stakeholders.

2) He is authentic.

His first job was as a janitor. He has also been a waiter. He talks about his parents. He recently opened up about his two suicide attempts as a young adult. He doesn't take pay raises and invests his annual bonuses in student scholarships. He hugs. He laughs at himself. He doesn't always have the answer, but he will do everything in his power to find it. And, there seem to be no tweets that are prepped by the communications department. You trust the guy. Our society no longer gives blind trust to its leaders. We crave authenticity, and that, he has.

3) He is masterful at shared leadership.

His speeches, tweets, and commentary speak volumes of his understanding of collegial governance, servant leadership, and shared decision-making. He discounts competition on campus and talks about “lifting each other up.” More importantly, he lifts others up. Daily. He praises his predecessor, Martha Piper. He likely has or will sit down with his less successful predecessor, Arvind Gupta, whose five-year term lasted just 13 months. He builds bridges and teams that trust.

4) He can manage through a crisis.

A skilled communicator, Ono has proven his leadership during times of crisis. In 2014, University of Cincinnati student Brogan Dulle went missing for eight days and was later found dead. Ono supported the family in their “eight days of greatness” campaign, creating a day of selflessness on campus, and encouraging the campus community to perform random acts of kindness. After the shooting of Samuel Dubose by a former campus police officer, he made changes. He apologized to the family, he held open forums, he reformed the policing on campus, and he created a leadership position to ensure that safety was a top priority. Ono is vocal on issues of diversity. He communicates openly on tough issues. He is transparent through difficult times.

5) He has grit.

Ono works hard. Grit. Courage. Endurance. He has all of that.

6) Did I mention that he's cool?

As I wrote that, I could feel a collective cringe from academics across the country. *Ivory towers aren't supposed to be cool!* However, secretly, some might like his active social media presence, congratulating grads, recruiting students, solving issues as they arise, and celebrating professors. It is extremely cool that he raised \$100,000 selling his legendary bow-tie to friends of the university. And you can't help but like that he coined the hashtag #hot-testcollegeinAmerica. We might even wonder what UBC might become? He does Twitter surveys to connect, celebrates national doughnut day (in honour of his Canadian heritage?), and plays both Bach and Prince on his cello. He encourages students to

take selfies with strangers during orientation week. For a role that can appear intimidating and even pretentious, cool is a refreshing quality in the academy. Call it cool, or being of the times, he's there.

Of course, many of the cynics are waiting for the honeymoon to be over, and even predicting its demise. In such complex institutions, is this simply gloss, and is it really enough to succeed in one of the country's toughest jobs?

In my research on Canadian university presidents with unfinished mandates, six areas of concern emerged as having played a role in undermining presidents' ability to lead. These include: board governance and communication; trust within the executive team; mentorship; the role of the predecessor; the effectiveness of the transitional process; and issues relating to diversity.

In the history of failed university presidencies, there have been

bumpy roads for some US university presidents coming to Canada. Others have had some difficult times when "coming home," returning to a university or a city where they had spent time earlier in their life or ca-

“ In my research on Canadian university presidents with unfinished mandates, six areas of concern emerged as having played a role in undermining presidents' ability to lead. These include: board governance and communication; trust within the executive team; mentorship; the role of the predecessor; the effectiveness of the transitional process; and issues relating to diversity. ”

reer. In both scenarios, high expectations were not helpful.

However, early signs of Ono's leadership provide optimism and excitement for UBC, and for higher education more broadly. Canadian universities need to be centres of leading-edge research and creative teaching. They need to be global yet rooted in their communities; bold and ambitious, while being responsive and accessible; disruptive yet willing to be disrupted; innovative and entrepreneurial, while remaining caring and connected. Ono's performance to date sets high expectations for what is to come. **P**

Julie Cafley is Senior Vice President at the Public Policy Forum in Ottawa. Previously, she served as chief of staff to two presidents at the University of Ottawa. Her PhD thesis, completed in 2015, focused on university leadership and governance through the lens of unfinished mandates of university presidents in Canada.
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Students and staff team leaders from Western University were in Urubamba, Peru in May 2015 participating in Alternative Spring Break. A group of 10 students and two staff partnered with Nexos Comunitarios to build a wheelchair accessible bathroom for a family. The group also offered fun, interactive outdoor activities for the children of the community. Western University photo.

Making the World Our Students' Classroom

Amit Chakma

Despite universities' increased efforts to provide students with a wider range of opportunities to travel and experience other parts of the world while completing their post-secondary studies, the vast majority of today's undergraduates choose to stay home. For their own sake and Canada's future prosperity, this needs to change, writes the president of Western University.

Six months into their mandate following October's federal election, the Liberal government has sent some encouraging signals that it understands the potential for international education to become a more significant driver of economic development and prosperity in Canada.

Among these positive signs was February's roll-out of the new "EduCanada" brand designed to market Canadian postsecondary institutions abroad. Fea-

turing the bilingual tagline “A world of possibilities/Un monde de possibilités,” the new packaging positions Canada as a preferred destination for international students choosing where to pursue their studies in the global education marketplace.

Then in March, Immigration Minister John McCallum announced his intention to reform the Express Entry program—a computerized system that matches employers with foreign skilled workers, yet has rejected thousands of graduating international students already in Canada because the program favours prospective workers seeking to enter the country from abroad.

“International students have been shortchanged by the Express Entry system,” said McCallum, adding that newly minted graduates “are the cream of the crop in terms of potential future Canadians” and represent “the most fertile source of new immigrants for Canada.”

And in April, International Trade Minister Chrystia Freeland, in a speech to the Canada-China Business Council, was reported to suggest that government and business cooperate to sponsor 100,000 Canadian students to study abroad in China.

“Those human connections are essential to build a real and robust and lasting relationship,” said Freeland, referencing a similar campaign in the US promoted by President Barack Obama, called “100 Thousand Strong,” that also aims to strengthen bilateral relations through student exchange.

Freeland’s decidedly ambitious proposition particularly caught my attention because it relates closely to one of the key recommendations made in a report I helped prepare in 2012 as Chair of the federal government’s Advisory Panel on Canada’s International Education Strategy.

In that report, our panel argued that for Canada to realize its competitive aspirations in the

“Despite the fact that 97 per cent of Canadian universities offer their students an ever-increasing range of learning opportunities abroad, the survey reveals that only 3.1 per cent of full-time undergraduate students (approximately 25,000) participated in such programs during the 2012-13 academic year—a disappointingly low number that has been static for years.”

global economy and international education marketplace, the federal government should co-fund—together with academic institutions and/or provincial/territorial governments—a major student mobility program. The idea is to create opportunities for 50,000 Canadian students per year to travel abroad for study, cultural exchanges, community-service and/or other experiential learning activities by 2022.

Our panel suggested that a federal investment could be matched by institutions and/or provincial and territorial governments and private donors by a 2:1 ratio, and that such an initiative would be an important complement to other institutional programs providing similar opportunities for faculty exchanges and research partnerships with foreign institutions.

I welcome Freeland’s ambitious suggestion of 100,000 students pursuing study abroad. However, what’s more important to consider is the philosophy behind the idea, along with the merits of pursuing such a policy more aggressively to better support the development of our future global citizens.

In its 2014 survey of Canadian universities and their progress toward internationalization, Universities Canada highlighted the strengths, benefits and shortcomings of student mobility programs.

The survey’s report describes student mobility as “one of the most high-profile policy issues in both Canadian and global discussions of internationalization in higher education. The twin imperatives of raising students’ awareness as global citizens and of

preparing future workers for a globalized labour market and cross-cultural competencies are increasingly seen as vital reasons for promoting international experience for Canadian students, both abroad and on campus.”

Yet, despite the fact that 97 per cent of Canadian universities offer their students an ever-increasing range of learning opportunities abroad, the survey reveals that only 3.1 per cent of full-time undergraduate students (approximately 25,000) participated in such programs during the 2012-13 academic year—a disappointingly low number that has been static for years. In this regard, Canadian students trail their European and Australian counterparts, who are more inclined to travel as part of their formal postsecondary education.

When asked what they consider the most important barriers preventing students from traveling abroad as part of their educational experience, universities most often point to lack of funds or financial support—factors cited by 54 per cent as the top reason and by 91 per cent among the top three reasons. Almost half (49 per cent) listed “inflexible curricula” or “too-heavy programs” as other reasons keeping students at home, followed by students’ lack of interest or recognition of benefits (39 per cent).

At my own institution, Western University, we’ve been working hard to increase the number of international learning opportunities for our students, while at the same time removing institutional barriers that may discourage students from studying abroad. While we have made some headway

in raising the quantity, quality, profile and benefits of these opportunities, we continue to face challenges in encouraging their uptake.

“ At my own institution, Western University, we’ve been working hard to increase the number of international learning opportunities for our students, while at the same time removing institutional barriers that may discourage students from studying abroad. ”

During the 2014-15 academic year, for example, approximately 1,700 Western University students (undergraduate, masters and doctoral) participated in some kind of international learning experience. This represents less than 6 per cent of our total full-time student enrolment (28,900).

Among our longest-established and most successful international learning initiatives is the Alternative Spring Break, which enables students to participate in community-service projects with organizations located regionally, nationally and globally. Since the program began in 2002-03, close to 2,000 students have traveled across Ontario, Canada, the US and to countries in the Caribbean Islands, Central and South America, returning from their experiences with an increased sense of civic engagement, intercultural awareness and competency. Students are required to fund their own participation in this popular program, though there are some donor-sponsored award and bursary programs that help offset costs for qualified students.

Western’s latest initiative on this front is the International Learning Award—or “Boarding Pass”—which provides \$1,000 to all full-time, sec-

ond-year students who maintain an 80 per cent grade average and choose to participate in a university-sanctioned international learning experience in their third year. Similar to offers made by other universities, Western’s new Boarding Pass was included this year for the first time as a recruitment incentive in our admission offer packages. Given the high quality of students who study at Western (our students’ average entering grade is the highest among Ontario universities) we anticipate up to 40 per cent of our incoming class (5,200) will qualify for the award.

Of course, \$1,000 does not cover the full cost of most international learning opportunities, but it does send a message to students that gaining such experience is important and that it has value. I’ve made it my goal to create greater awareness of these programs on my campus and to encourage faculty to take their students abroad, whether for short-term trips or fieldwork, which also receives additional funding at Western.

For students and parents already grappling with the cost (and for many, associated debt) of financing their university education, an understandable question to ask is what is the pay-back for such an investment of money and time?

As reported by Tim Johnson in a recent article published in *University Affairs*, there are several studies that help answer this question. For example, in a study conducted by the Canadian Bureau for International Education, 90 per cent of graduates who participated in such programs say the experience has contributed to their career achievements. Another CBIE survey estimates that 80 per cent of Canadian hiring managers view cross-cultural understanding and knowledge of a global marketplace in their employees as competitive assets for their companies. And looking beyond our national borders, Johnson reports that alumni of the European Union’s Erasmus student mobility program

have an unemployment rate 23 per cent lower than their peers five years after graduation.

So while its immediate financial cost, time and other obstacles may discourage studying abroad, its longer-term benefits—for individuals and society as a whole—offer compelling reasons to overcome these barriers.

“ But the imperative to better prepare young Canadians for life in the global economy should make crystal clear for all the need for programs that promote and support opportunities for students to make the world their classroom. ”

From my personal perspective as a Bangladeshi immigrant who has studied and worked in multiple countries and five Canadian provinces over the past 30 years, the intrinsic value of developing a broad world view through international education is self-evident. But the imperative to better prepare young Canadians for life in the global economy should make crystal clear for all the need for programs that promote and support opportunities for students to make the world their classroom. **P**

Amit Chakma is President & Vice-Chancellor of Western University, and a past chair of both the World University Service of Canada and U15 Group of Canadian Research Universities. achakma@uwo.ca

Attracting and Cultivating Talent for the Fourth Industrial Revolution

Suzanne Fortier

The greatest challenge for universities in a rapidly evolving social and economic environment is how to transfer knowledge and skills to students that will serve them long-term at a time when the pace of change is dazzling. McGill Principal Suzanne Fortier writes that the World Economic Forum-coined Fourth Industrial Revolution provides the perfect framework for that endeavour.

our universities with an education aligned with labour market needs, ready to make a quick transition from study to work in diverse cultural and geographical locations. A learning experience that adapts and evolves in different time scales and cultural environments has thus become what our students need today.

“Characteristics traditionally seen as the outcome of a good university education, such as acquiring deep expertise in a particular academic subject, developing strong analytical skills, and cultivating an ability to learn, are no longer sufficient.”

The Fourth Industrial Revolution, the theme of the World Economic Forum (WEF) in Davos, Switzerland last January, provides a compelling framework for leaders in Canada to plan for the massive transformations ahead. At the heart of the Fourth Industrial Revolution lies “a fusion of technologies across the physical, digital and biological worlds,” a fusion already emerging in many sectors, including the industrial, environmental, health and arts sectors. Its extraordinary possibilities have the potential to improve quality of life for many. However, as the founder of the WEF, Klaus Schwab, points out, the disruption could also lead to the loss of hundreds of thousands of jobs for less-educated people, and thus to possible increased economic and social inequality.

What will these momentous changes mean to Canada, its economy and its workforce? What will they mean for universities and the role they play in attracting and educating the people who will lead this revolution?

Reimagining a learning experience for students in a global, hyper-connected, highly com-

petitive world of relentless churn and constant new opportunities is the biggest challenge facing universities today. Given the scale, scope and pace of change in the Fourth Industrial Revolution, forecasting the knowledge, expertise and skills needed in the future will become exponentially more challenging. As the WEF report *The Future of Jobs: Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution* states: “The accelerating pace of technological, demographic and socio-economic disruption is transforming industries and business models, changing the skills that employers need and shortening the shelf-life of employees’ existing skill sets in the process.” In this new world, universities face the challenge of teaching students knowledge and skills that will allow them to be productive in jobs that we cannot yet even imagine, and to learn and create new technologies, business and social models for a future that we cannot yet fully envision.

While these issues preoccupy academic leaders, business leaders are eager to see new graduates coming out of

Characteristics traditionally seen as the outcome of a good university education, such as acquiring deep expertise in a particular academic subject, developing strong analytical skills, and cultivating an ability to learn, are no longer sufficient. Developing leadership and resilience, nurturing creativity and intellectual agility, and enabling hands-on experience early on, both locally and globally, are now essential components of a successful university education. In every university, dynamic new environments are emerging that provide a rich suite of experiences and extend learning well beyond the campus. Partnerships among the private,

government and academic sectors are also contributing to building the launching pad needed for graduates to join the Fourth Industrial Revolution. A great example is the Canadian Business Higher Education Roundtable, a union of leaders in higher education and major corporations that has given itself the goal of providing access to work-integrated learning for every student in Canada.

In the Fourth Industrial Revolution, Canada's strength will come from creative talent. The agility, inventiveness and adaptability of this talent will be

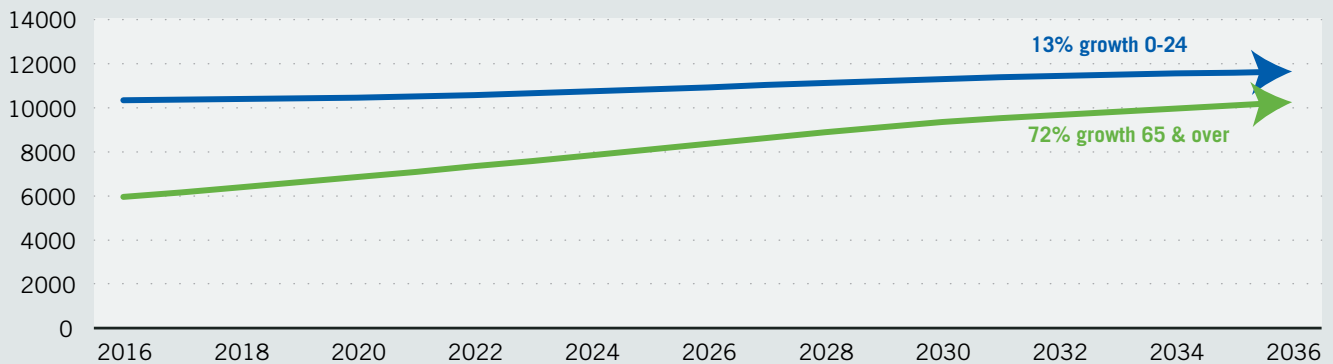
“With the percentage of young university graduates in Canada hovering just above the OECD average, we will need to continue efforts to increase university participation.”

key to allow our nation to compete in a world in permanent flux.

With the percentage of young uni-

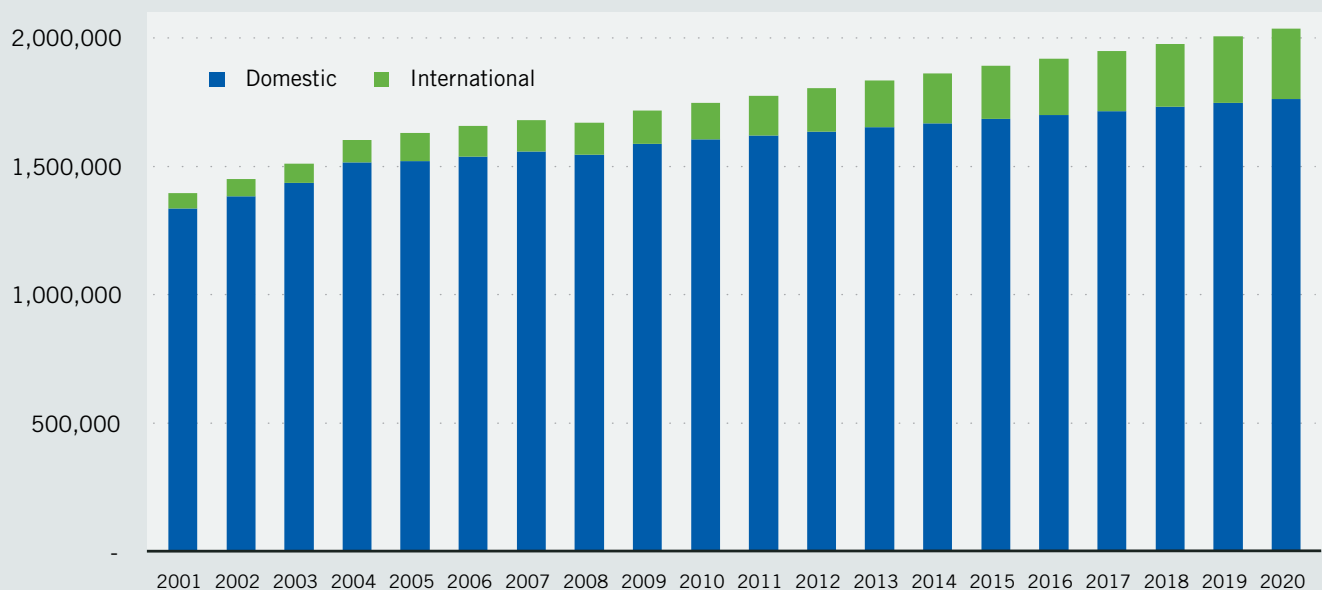
versity graduates in Canada hovering just above the OECD average, we will need to continue efforts to increase university participation. In a society and economy fully anchored by knowledge, education will increasingly be a key factor in equipping citizens to adapt to changes and seize new opportunities. In addition, Canada faces a talent crisis due to an aging population. Over the next two decades, the segment of the Canadian population younger than 25 years of age is projected to grow by 13 per cent while the segment older than 64 years is estimated to increase by 72 per cent.

Figure 1: Population Projections for Canada



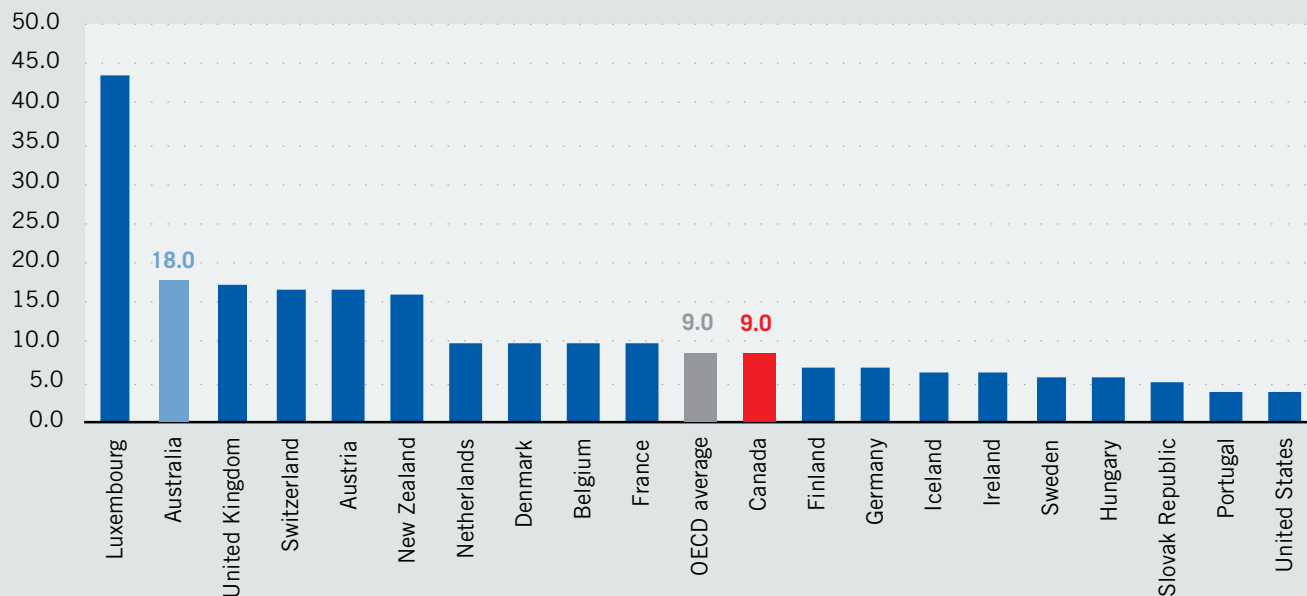
Source: Statistics Canada, Table 052 -0005, Medium-growth scenario

Figure 2: Enrolment Growth in Canadian Higher Education, International and Domestic Enrolment



Source: The Illuminate Consulting Group, based on data from Statistics Canada

Figure 3: International Students as a Percentage of Total Higher Education Enrolment (2013)



Source: OECD, Education at a Glance, 2015

Fortunately, Canada has a long tradition of attracting students from all corners of the world to its universities, a good number of whom later choose to make Canada their home.

In 2013-14, according to Statistics Canada, Canada's universities attracted 145,000 international students, a growth of 65 per cent in just five years. Bringing in talented people from around the globe is a winning proposition for Canada that does more than revitalize an aging population. These international citizens also impart a global perspective to our academic environment—and in our communities. In learning and in research, students and faculty from different countries and cultures enrich the diversity of knowledge and the creativity of our thinking.

Educating students from countries with still-underdeveloped university systems is also an important Canadian contribution to promoting inclusive growth worldwide.

Our nation has the capacity and potential to attract talent from around the globe. Three of the world's top 15 "Best Student Cities," according

to the QS World University Rankings, are in Canada. According to *The Times* Higher Education supplement, "the toughening of the immigration system" in England and "campaign rhetoric from Donald Trump" in the US could open up increased opportunities for Canada. And there is still room for growth. Students from outside the country comprise only 9 per cent of enrolment in higher education, which puts Canada at the OECD average. Australia, the United Kingdom and Switzerland boast nearly twice that percentage.

In Australia, international education is valued not only for its ability to enrich the academic environment and to provide a new pool of talent for businesses, but also as one of the country's most important export clusters. With an economic impact of \$17 billion in 2014, international education ranks as the country's fourth-highest export industry, after iron ore, coal and natural gas, and as its most important service export.

According to Global Affairs Canada, international students collectively spent more than \$10 billion in Canada in 2015. In contrast with Australia,

Canada does not track international education as an export sector, and does not rank its relative importance in the economy.

The Australian experience holds an important lesson for Canada. While jurisdiction for education rests with the provinces, branding Canada as a place of choice for higher education will be essential to successfully compete for talent globally. Australia attained its exceptional growth in international education over the last three decades not by happenstance, but by strategic and deliberate effort.

The quality of our talent will be the deciding factor in determining whether Canada leads in this new era, and the competition for smart people will only intensify. Universities, businesses, not-for-profits and governments must work together to promote our country as an education destination and build the agility needed for Canada to succeed in the Fourth Industrial Revolution. **P**

Suzanne Fortier is Principal and Vice-Chancellor of McGill University. suzanne.fortier@mcgill.ca

Attirer et cultiver le talent pour la quatrième révolution industrielle

Suzanne Fortier

Compte tenu de la rapidité avec laquelle évolue le contexte socioéconomique actuel, transmettre aux étudiants le savoir et les compétences qui leur seront utiles à long terme représente le grand défi des universités. Selon Suzanne Fortier, principale de l'Université McGill, ce que le Forum économique mondial qualifie de « quatrième révolution industrielle » est on ne peut plus propice à cette entreprise.

tés qu'elles forment des diplômés capables de répondre aux besoins du marché du travail, de faire la transition des études au milieu du travail, et ce, dans divers pays et cultures. Les étudiants d'aujourd'hui doivent par conséquent vivre des expériences d'apprentissage qui leur permettront de s'adapter aux changements et aux diverses cultures.

“ Acquérir une solide expertise dans un domaine donné ou des compétences en analyse, considérées autrefois comme le résultat d'une bonne formation universitaire, ne suffit plus. ”

Acquérir une solide expertise dans un domaine donné ou des compétences en analyse, considérées autrefois comme le résultat d'une bonne formation universitaire, ne suffit plus.

De nos jours, il est essentiel qu'une bonne formation universitaire permette de développer le leadership et la résilience, de stimuler la créativité et l'agilité intellectuelle, et de vivre assez tôt des expériences pratiques, au pays comme à l'étranger. On assiste dans toutes les universités à l'émergence de nouveaux environnements dynamiques porteurs d'un large éventail d'expériences et d'occasions d'apprentissage qui vont bien au-delà des campus. Les partenariats entre le secteur privé, le gouvernement et le milieu universitaire contribuent également à préparer les diplômés pour la quatrième révolution industrielle; la Table ronde sur l'enseignement supérieur et les entreprises en est un bon exemple.

Thème du Forum économique mondial (FEM) de janvier dernier à Davos, en Suisse, la quatrième révolution industrielle est l'occasion idéale pour les dirigeants canadiens de se préparer aux bouleversements à venir. La quatrième révolution industrielle repose sur une « une fusion des technologies dans les secteurs physique, numérique et biologique ». Cette fusion que l'on commence déjà à observer entre autres dans l'industrie, l'environnement, la santé et les arts est porteuse de possibilités extraordinaires, susceptibles d'améliorer la qualité de vie de plusieurs. Toutefois, comme le souligne le fondateur du FEM, Klaus Schwab, cette révolution pourrait aussi conduire à la perte de milliers d'emplois pour les gens peu instruits, et accentuer ainsi les inégalités socioéconomiques.

Quelles répercussions ces bouleversements auront-ils sur le Canada, son économie et sa main-d'œuvre? Quelles conséquences auront-ils sur les universités et sur leur capacité à attirer et à former les personnes appelées à diriger la révolution qui s'annonce?

Le plus grand défi que doivent aujourd'hui relever les universités est de repenser le parcours d'apprentissage des étudiants dans un univers mondialisé, hyper

connecté, extrêmement concurrentiel, en perpétuel mouvement et générateur de nouvelles possibilités. Compte tenu de l'ampleur et du rythme des changements engendrés par la quatrième révolution industrielle, il sera de plus en plus difficile de prévoir les connaissances, l'expertise et les compétences qui seront exigées. Comme on peut le lire dans le rapport du FEM intitulé *The Future of Jobs: Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution* : « L'accélération des bouleversements technologiques, démographiques et socioéconomiques transforme les secteurs et les modèles de gestion, modifie les besoins des employeurs en termes de compétences, et rendent plus rapidement désuètes les compétences préalablement acquises par les employés. » Dans ce nouveau monde, les universités devront être en mesure d'inculquer aux étudiants le savoir et les compétences qui leur permettront d'être productifs dans le cadre d'emplois qu'il nous est encore impossible d'imaginer aujourd'hui, ainsi que d'apprendre et de créer de nouvelles technologies, de nouveaux modèles de gestion et de nouveaux modèles sociaux adaptés à un avenir difficilement envisageable à l'heure actuelle.

Alors que ces enjeux préoccupent les dirigeants universitaires, les dirigeants d'entreprises, eux, attendent des universi-

Composée de dirigeants du milieu de l'enseignement supérieur et de grandes entreprises, la table ronde s'est donné comme objectif de permettre à chaque étudiant canadien de bénéficier d'un apprentissage intégré au travail.

Dans le cadre de la quatrième révolution industrielle, le Canada tirera sa force du talent créatif, sachant impérativement faire preuve de souplesse, d'inventivité et d'adaptabilité afin d'être en mesure de livrer concurrence dans un monde en perpétuelle mutation.

Au Canada, le pourcentage de jeunes diplômés universitaires dépasse à peine la moyenne des pays de l'OCDE. Nous devons donc poursuivre nos efforts en vue d'accroître la fréquentation des universités.

Dans une société et une économie entièrement fondées sur le savoir, l'éducation sera un facteur clé permettant de s'adapter au changement et de saisir les occasions qui se présenteront. Le Canada est par ailleurs aux prises avec une crise des talents, attribuable au vieillissement de sa population. Au cours des 20 prochaines années, on prévoit que le nombre

de Canadiens de moins de 25 ans ne progressera que de 13 pour cent, alors que celui des plus de 64 ans connaîtra une progression de 72 pour cent.

Heureusement, les universités canadiennes attirent depuis longtemps des étudiants du monde entier, dont un bon nombre choisissent ensuite de s'établir définitivement au Canada.

Selon Statistique Canada, en 2013-2014, les universités canadiennes ont attiré 145 000 étudiants étrangers, soit une augmentation de 65 pour cent en cinq ans. Pour le Canada, le

Chart 1 : Projections d'évolution de la population canadienne

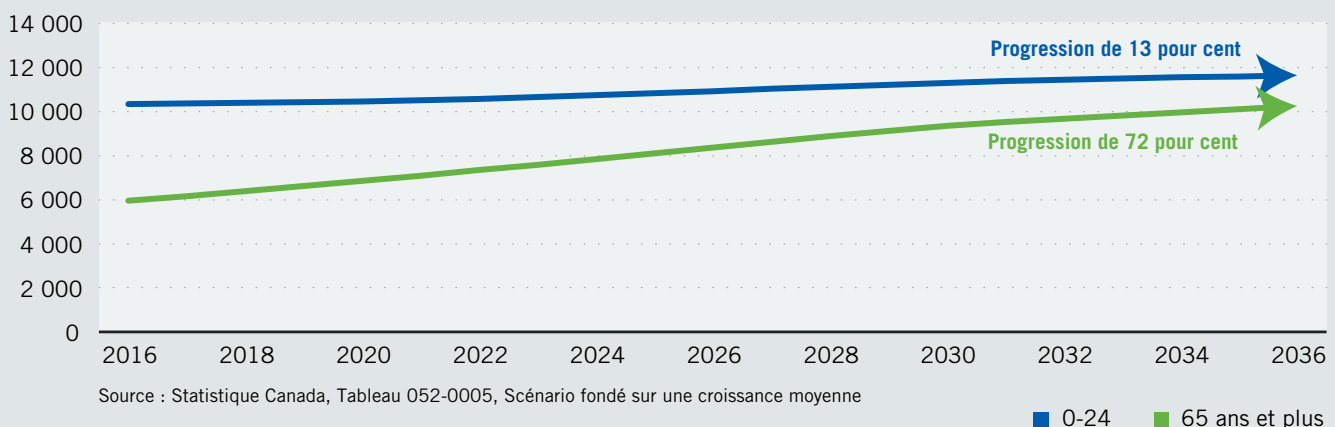
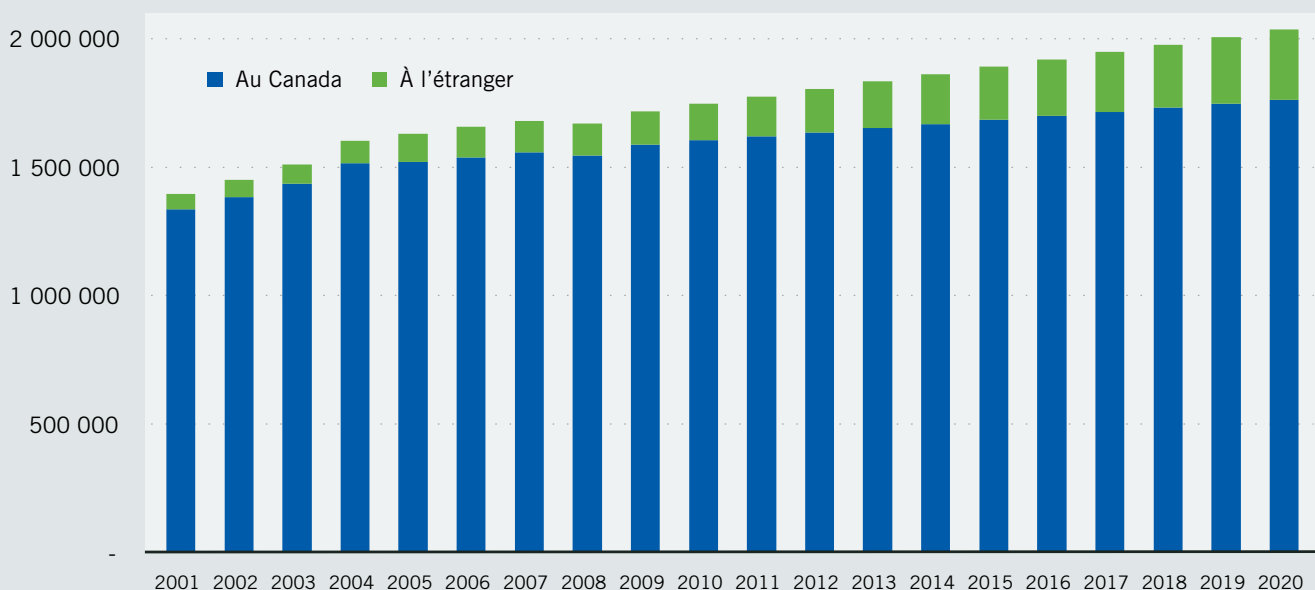
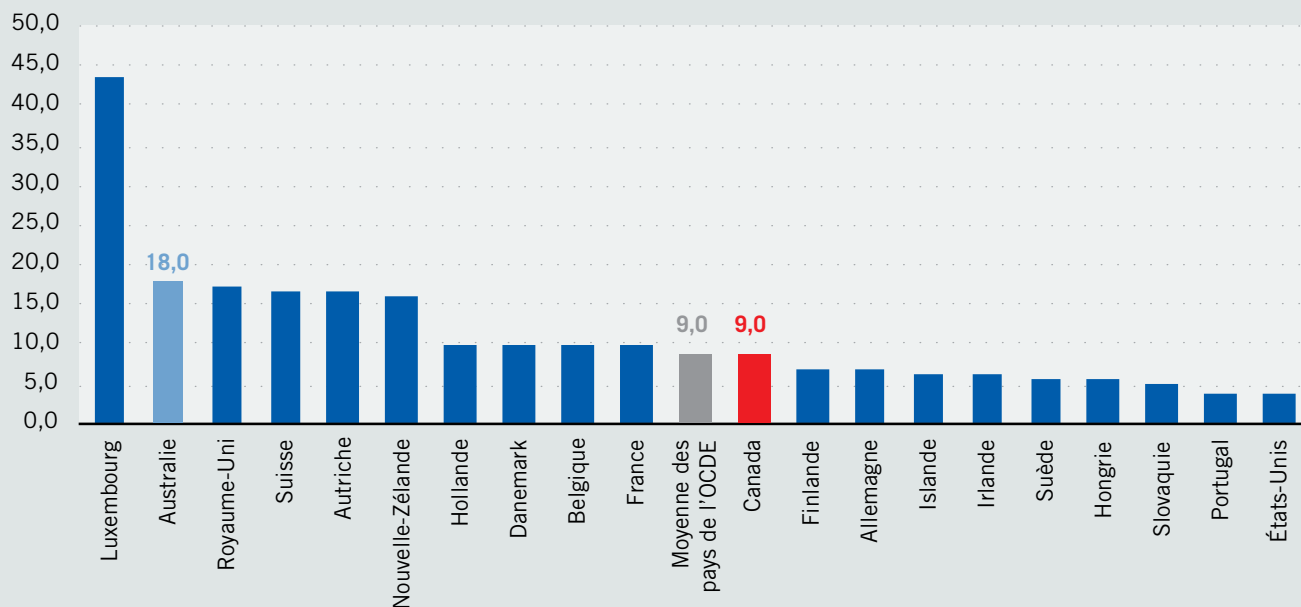


Chart 2 : Croissance des inscriptions à l'université au Canada Inscriptions au pays et à l'étranger



Source : Illuminate Consulting Group, d'après les données de Statistique Canada

Chart 3 : Pourcentage d'étudiants étrangers au sein de l'effectif universitaire (2013)



Source : OCDE, Regards sur l'éducation 2015

fait d'attirer des talents du monde entier est une stratégie gagnante qui fait plus que redonner du dynamisme à une population vieillissante.

Ces citoyens étrangers transmettent une vision internationale au milieu universitaire et aux collectivités. Sur les plans de l'apprentissage et de la recherche, les étudiants et les professeurs venus de cultures et de pays différents contribuent à la diversité du savoir et à la créativité des Canadiens.

De plus, en accueillant des étudiants venus de pays dont le secteur universitaire est peu développé, le Canada contribue grandement à l'avènement d'une croissance inclusive, partout dans le monde.

Notre pays possède les capacités et le potentiel nécessaires pour attirer le talent du monde entier. Selon le classement mondial des universités établi par Quacquarelli Symonds, trois des 15 villes idéales pour les étudiants se trouvent au Canada. Par ailleurs, selon le supplément du *Times* consacré à l'enseignement supérieur, le durcissement du système d'immigration au Royaume-Uni et la rhétorique soutenue par Donald Trump aux États-Unis pourraient jouer en faveur du Canada. Signalons

en outre que les capacités d'accueil du Canada sont loin d'être épuisées. Les étudiants étrangers ne représentent actuellement que neuf pour cent de l'effectif universitaire canadien, ce qui place le Canada dans la moyenne des pays de l'OCDE. Ce pourcentage atteint plus du double en Australie, au Royaume-Uni et en Suisse.

En Australie, les étudiants étrangers sont appréciés non seulement parce qu'ils enrichissent le milieu universitaire et constituent un réservoir de talent pour les entreprises, mais aussi parce que l'éducation internationale compte parmi les principaux secteurs d'exportations du pays. Avec un impact de 17 milliards de dollars sur l'économie australienne en 2014, l'éducation internationale représente plus précisément la quatrième exportation du pays, derrière le minerai de fer, le charbon et le gaz naturel.

Selon Affaires mondiales Canada, en 2015, les étudiants étrangers ont injecté collectivement plus de 10 millions de dollars dans l'économie canadienne. Toutefois, contrairement à l'Australie, le Canada ne considère pas l'éducation internationale comme une exportation et ne mesure donc pas son apport à l'économie.

L'expérience australienne est porteuse d'une précieuse leçon pour notre pays. Bien que l'éducation relève chez nous de la compétence des provinces, il est essentiel, pour réussir à attirer les talents du monde entier, de promouvoir le Canada comme une destination de choix en matière d'études universitaires. Les progrès exceptionnels accomplis depuis 30 ans par l'Australie sur le plan de l'éducation internationale ne sont pas le fruit du hasard, mais plutôt le résultat d'une stratégie délibérée.

La capacité du Canada à devenir chef de file de la nouvelle ère qui s'amorce dépendra de la qualité du talent. La concurrence que se livreront les États pour attirer les plus brillants cerveaux ira en s'intensifiant. Les universités, les entreprises, les organisations à but non lucratif et les gouvernements doivent collaborer à promouvoir notre pays comme une destination de choix en matière d'éducation ainsi qu'à mettre en place la souplesse dont le Canada a besoin pour réussir dans la quatrième révolution industrielle. **P**

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Indspire's experience has been that when Aboriginal students "we support financially and in other ways" on entering university, 93 per cent graduate. McMaster University photo.

A Call for Quality Education

Roberta Jamieson

Education is a key principal to transforming the relationship between Canada and Indigenous Peoples, if there is to be the reconciliation for which the Truth and Reconciliation Commission has laid the groundwork. For indigenous people, it will increase capacity to make constructive change leading to better economic circumstances not just for their own communities but for the country as a whole. Canada's postsecondary institutions have shown initiative and leadership as partners in our mission to close the access and achievement gaps between indigenous students and their non-indigenous fellow Canadians.

The Truth and Reconciliation Commission (TRC) laboured six years to gather the evidence it required to set out its recommendations. This autumn marks 15 months since it issued a summary of the final report. Has it changed anything in the relationship between Indigenous Peoples and Canadians generally?

Well, yes. There has been some noticeable improvement. Even before it reported, the Commission's work had set into motion what it hoped would become "a new consciousness in Canada." The commissioners understood from the start they were "a catalyst for

deepening our national awareness of the meaning and potential of reconciliation,” but that it would “take many heads, hands and hearts, working together at all levels of society to maintain momentum in the years ahead. It will also take sustained political will at all levels of government and concerted material resources.”

One of the areas the TRC identified as holding particular promise is education. In fact, it is a key driver for change overall.

One paramount change required is the closing of the gap between indigenous student high school graduation and the graduation rate of Canadians generally. On average, about 37 per cent of First Nations students graduate from high school, compared to a near 87 per cent among Canadian students generally.

This distressing fact has behind it a number of key factors, including poverty. Earlier this year, the Canadian Centre for Policy Alternatives found that 76 per cent of the First Nations children in Manitoba—and more than half across Canada—lived below the poverty line.

The poverty of the children is too often matched by underfunding of their schools—a huge gap in funding of First Nation schools as compared to neighbouring schools. A Manitoba reserve school that was recently placed in the provincial school system and received an additional \$5,000 per student, showed dramatic immediate improvement in what had been a serious failure in acceptable results.

But failure to achieve in impoverished elementary and secondary schools goes beyond the lack of funds. Too often, the curriculum is irrelevant to the geography, the culture, the language of our peoples. Add to this effects of residential schools created so young children could be taken away from their parents, forbidden to speak their languages. When those children became parents, too often they not only had the problems that young people have when they have

“One paramount change required is the closing of the gap between indigenous student high school graduation and the graduation rate of Canadians generally. On average, about 37 per cent of First Nations students graduate from high school, compared to a near 87 per cent among Canadian students generally.”

been raised without parents, but they had little experience in knowing what they themselves had to do to be good parents.

We have been caught in this cycle for decades. When any people has had generations whose formal education showed no respect for culture, tradition, language, they can expect their children and youth will not have much enthusiasm for participating in the same process.

All of this is why Indspire, the national charity I commit my energies to as President and CEO, started a “K-12 Institute” to support educators and community-based initiatives to restore language, culture, *our* history and knowledge so we can continue to survive as indigenous people and as well gives students pride, gives culture a future, and is transferrable anywhere in Canada and beyond.

It is exciting to see what can happen with the right mix. Look at the Mi’kmaq success rate in Nova Scotia: they graduate over 88 per cent of students that begin Grade 12 on reserves. Why does this happen? Mi’kmaq schools are run by Mi’kmaq people through an education authority, Mi’kmaw Kina’matnewey. Set up in 1999 by the federal *Mi’kmaq Education Act*, the authority boasts over 50 per cent Mi’kmaq teachers and a curriculum that stresses Mi’kmaq culture and language.

The TRC saw this kind of need for even younger children: Call to Action number 12 states, “We call upon the federal, provincial, territorial, and Aboriginal governments to develop *culturally appropriate* early childhood education programs for Aboriginal families.”

Education is the key to our future, our future as Indigenous Peoples.

We need those high school graduates, confident in their culture and identity, so we can close a second gap—just 10 per cent of our people graduate from university, compared to about 27 per cent of Canadians generally. That deficiency affects our ability to decolonize our relationship with Canada, to be able to play our own role in the reconciliation process, to create healthy communities, to make them prosper and to contribute our full potential to our people, to Canada and to the world.

The need to indigenize the postsecondary education experience is something that most universities have recognized as essential. Canadian universities are taking a number of impressive initiatives to address this challenge. Universities Canada worked with Indspire to develop an action plan that showed definite results. (The report, *Moving Forward: National Working Summit on Aboriginal Postsecondary Education*, is online at <https://www.univcan.ca/wp-content/uploads/2015/11/aboriginal-moving-forward-report-summit-dec-2010.pdf>). When the Truth and Reconciliation report came out, the action plan was expanded. Today, some two-thirds of Canadian universities have transition programs to help indigenous students be successful.

Last spring, Governor General David Johnston invited the chancellors of Canada’s universities to Rideau Hall to discuss the role postsecondary institutions could play in making reconciliation happen. The discussion focused on both the change that is

already happening and the change that must yet take place.

Building on the findings of the TRC, the Federation for the Humanities and Social Sciences has announced its commitment to contribute to reconciliation between aboriginal and non-aboriginal peoples. “Our focus is on the crucial role that postsecondary education, the humanities and social sciences will play in the process of research, understanding and action towards reconciliation.”

The Federation has adopted the “Touchstones of Hope Principles and Processes” to guide its work on reconciliation. These principles are laid out in a four-phase reconciliation process: truth-telling, acknowledging, restoring and relating. In this framework, reconciliation is recognized as being a movement that must be built and sustained—it is not an event or a short-term project.

With university educators becoming increasingly aware of the inadequate role that postsecondary institutions played in the past in training teachers, the federation is advocating support for the TRC’s Call to Action number 62: postsecondary institutions should have sufficient funding to educate teachers on how to integrate Indigenous knowledge and teaching methods into classrooms.

It also supports Call to Action number 16: “We call upon postsecondary institutions to create university and college degree and diploma programs in aboriginal languages.”

There is a particularly important role for Indigenous postsecondary institutions such as the Six Nations Polytechnical Institute in my own Grand River Territory—they have high potential to develop capacity in our communities. In Saskatchewan there is the First Nations University of Canada.

In 2015, Ontario announced \$97 million in funding over three years for indigenous postsecondary education and training. In fact, a new stand-alone *Aboriginal Institutes Policy* is

planned to incorporate indigenous-owned-and-controlled postsecondary institutes into Ontario’s postsecondary education and training system.

“Our experience at Indspire is that when students we support financially and in other ways get into university, 93 per cent graduate.”

But even then, if our students are to obtain that education, there is a third gap to be eliminated—the gap between indigenous students who want a postsecondary education and the funds they have available to cover the costs. The Commission spoke to that issue in Call to Action number 11: “We call upon the federal government to provide adequate funding to end the backlog of First Nations students seeking a postsecondary education.”

Indspire can also be witness to that situation. It raises millions of dollars every year from individuals, governments and the corporate sector so that indigenous people are not denied the opportunity for postsecondary education for the sole reason that they lack funds. In 2015-16, Indspire awarded over \$12.2 million through 3,792 bursaries and scholarships to Indigenous students across Canada, making us the largest funder. Our experience at Indspire is that when students we support financially and in other ways get into university, 93 per cent graduate.

But we are painfully conscious that we are far short of meeting the need—last year we had sufficient funds to meet only 10.7 per cent of the amounts sought by applicants.

Can Canada say it is too expensive to ensure that schools for indigenous children have the same amount of funding received by neighbouring schools, if we ensure child welfare services for indigenous children are fund-

ed similarly to provincial agencies?

Of course not. Such an argument is legally and morally offensive. Not only that we must consider the other side of the ledger: the report of the Centre for the Study of Living Standards calculated a few years back that if Canada could close the “education gap” between indigenous students and Canadian students generally, more than \$115-billion would be saved in social, health, and other costs over a short period of time, while at the same time adding more than \$401-billion to Canada’s GDP.

Both federal and provincial governments must take the lead in making the investments and setting policy. But they alone cannot make change happen. All other sectors must play a role if we are to succeed in creating a better future for Canada. It will only be then that we will be better able to cross the threshold into a new era of true reconciliation.

Think of the power of just those students who received Indspire bursaries this past year alone: 127 engineers, 128 doctors, 284 in science related fields, 353 nurses, 409 in business, 463 in education, plus others in social work, technical studies, trades, and social sciences. These are real people in real time providing Indigenous People and Canada alike with real opportunity.

If we can support today’s students today, they will become the change agents to enable our communities to create their own sustainable future, and Canada will be the stronger for it.

Education is an investment that pays back also because it is the main key to releasing the true potential that Indigenous Peoples have to offer not only to our own future generations, but also to Canada, and to the world. **P**

Roberta Jamieson is President and CEO of Indspire, an indigenous led national charity that raises funds for bursaries for postsecondary education and training and for a K-12 Institute to help educators provide culturally appropriate community-driven education leading to increased high school graduation.
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Barista or Better? Where Post-Secondary Education Will Take You

Ross Finnie

The Education Policy Research Initiative (EPRI), a national research organization based at the University of Ottawa, has used administrative student data held by 14 post-secondary education (PSE) institutions in four different regions of the country linked to tax files at Statistics Canada in order to track students' post-graduation earnings from 2005 through 2013. Their analysis suggests that the well-known barista myth is precisely that, and has little grounding in the actual data on student earnings.

The skills that individuals acquire and develop play a fundamental role in determining their labour-market opportunities and life chances. Postsecondary education (PSE) is a primary means by which Canadians obtain these skills.

As such, it is important to have useful and timely learning and labour market information (LLMI) widely available so that all players in the PSE system—students making their PSE choices, PSE institutions making decisions about which programs to offer, and various policy makers that operate on the terrain related to education, skills, and the labour market—can make informed decisions.

Empirical evidence on the labour market performance of recent PSE graduates is crucial. Graduates' earnings are almost certainly the single most valuable piece of information in this respect.

In this context, PSE students, recent graduates, and those still at the point of making PSE decisions are often

confronted with the now familiar barista trope—the suggestion (even assumption) that going to university, particularly in a non-STEM (Science, Technology, Engineering, Mathematics) area of study, is a waste of time and will leave the student stuck in a job with low earnings and little opportunity for career advancement.

However, it turns out that degree holders are faring rather well in the labour market, and that their earnings surpass the levels suggested by the hoary old barista tale by a wide margin.

In the past, only a limited set of data sources in Canada included information on graduates' outcomes, and all had serious limitations. National surveys of graduates conducted by Statistics Canada, more general-purpose datasets such as the Census and Labour Force Survey, and PSE institutions' surveys of their own graduates have provided interesting and in some ways useful evidence, but none possess the kind of detailed, accurate, consistent, extended, and up-to-date

information on graduate outcomes that is needed.

In an effort to fill this gap, the Education Policy Research Initiative (EPRI), a national research organization based at the University of Ottawa, has undertaken a research project—funded by Employment and Social Development Canada (ESDC) and conducted in partnership with Statistics Canada—that uses administrative data provided by 14 PSE institutions from across four Canadian regions linked to tax records held at Statistics Canada to track the labour market outcomes of Canadian college (diploma) and university (bachelor's) graduates.

The study tracked all graduates from the participating PSE institutions who completed their studies from 2005 through 2012, following them through 2013 (the latest year for which tax data were available when the project was started). Graduates who went on to further schooling, earned less than \$1,000, or did not file taxes are not included in the results. This article focuses on the key results for bachelor's degree graduates, but the full report—available at EPRI.ca—also includes results for college diploma graduates. The findings are interesting, important, and possibly surprising. In particular, the barista story line referred to above appears to be refuted by actual empirical evidence.

For the 2005 bachelor's graduates taken together (i.e., across all areas of study), average annual (mean) earnings were \$45,200

in 2006 (Figure 1), their first full year following graduation (2014 dollar). Earnings then grew steadily, on average increasing by \$4,200 per year, to finish at just below \$75,000, or 66 per cent above the starting level, eight years following graduation.

Comparing across graduating cohorts—those who completed their studies in 2005, 2007, 2009, and 2011—we first see that the 2007 graduates started approximately \$2,500 above those who finished two years earlier, but followed a similar growth trajectory over time.

The 2009 graduates hit the labour market in 2010, and thus after the 2008 financial crisis, so it might be expected that their starting earnings would be lower, and they were—but while they were down a full \$3,400 (or about 7.7 per cent) from the preceding cohort (2007 graduates), they were only \$1,000 (about 2.2 per cent) below what the 2005 cohort earned in their first year. The 2011 cohort started at approximately the same \$44,000 level

“While one of the popular story lines is that university graduates are not doing well in the labour market, the other is that the bottom has fallen out since the 2008 financial crisis. The data clearly show that neither of these ‘facts’ is actually true.”

as the 2009 graduates. For all cohorts, earnings growth remained strong in the years following graduation.

That is, earnings did vary across cohorts, but they might be seen more as a pattern where the 2007 graduates did exceptionally well, while the others (those who finished in 2005, 2009, and 2011) all earned within a thousand dollars of each other in their first year following graduation, and saw their earnings increase substantially in each and every year after that.

This is significant, because while one of the popular story lines is that university graduates are not doing well in the labour market, the other is that

the bottom has fallen out since the 2008 financial crisis. The data clearly show that neither of these “facts” is actually true.

Across different fields of study (Figure 3), however, the patterns in terms of starting earnings levels, earnings growth, and final earnings levels are seen to vary substantially (Figure 3). Engineering and health graduates consistently had the highest earnings to start, generally in the \$60,000 range. Recall that these are average earnings—first year out. These graduates were, then doing quite well immediately as they entered the labour market.

These were generally followed—grad-

Figure 1: Mean Earnings, All Degree Graduates, 2005 Cohort

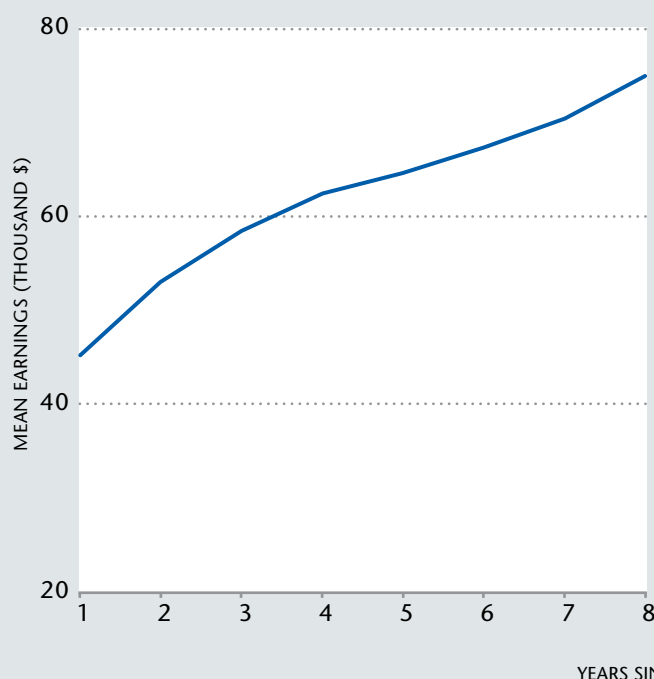
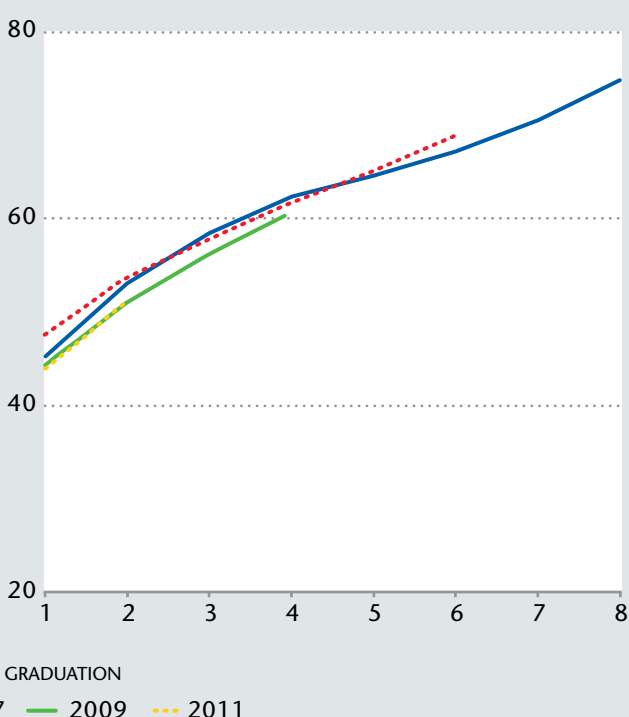
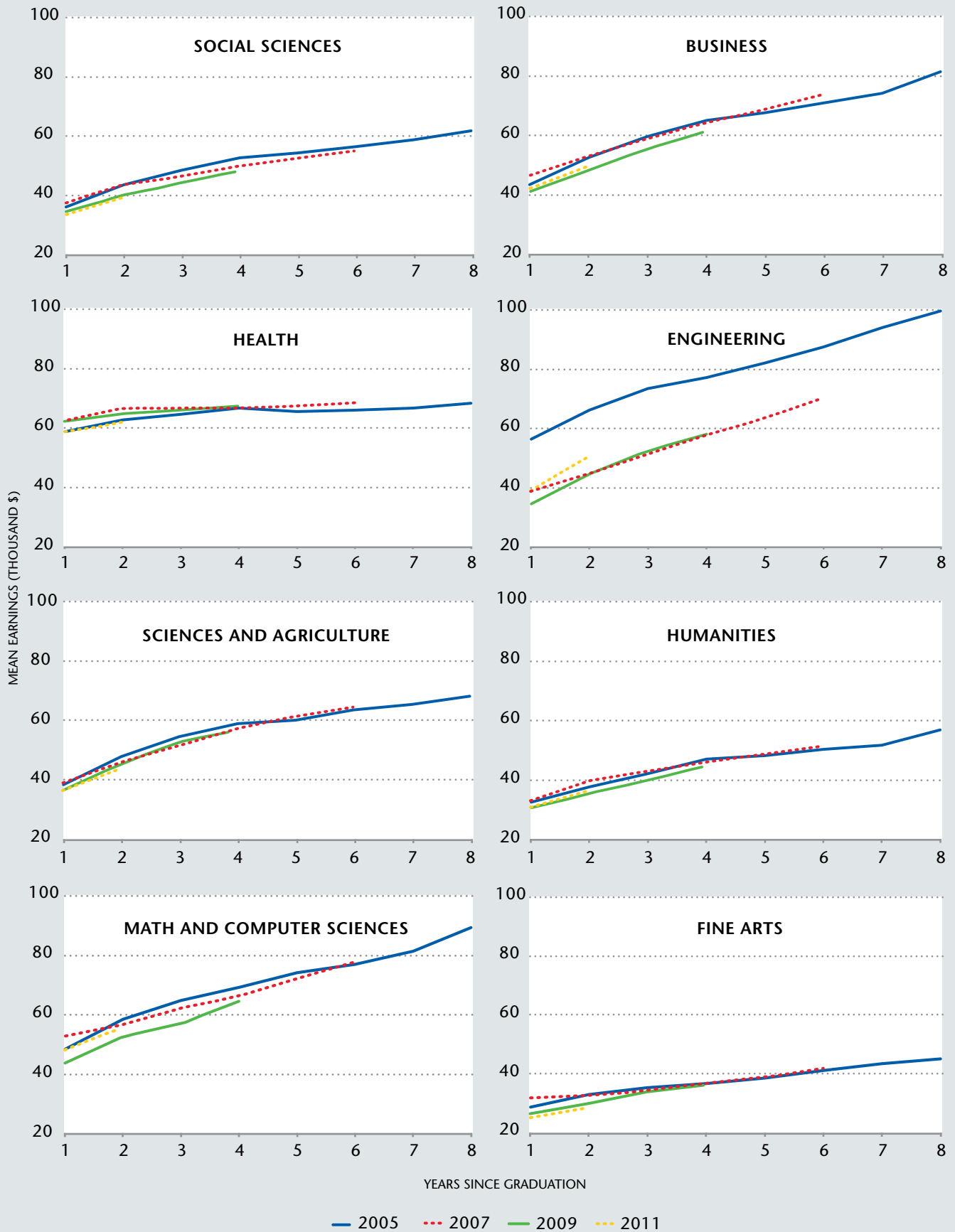


Figure 2: Mean Earnings, All Degree Graduates, Selected Cohorts



Source: Author

Figure 3: Mean Earnings by Field of Study, Selected Cohorts



Source: Author

uating cohort in and out—by business and math & computer science graduates, who generally started between the low \$40,000s and as much as \$52,700 for the 2007 graduates in math & computer science.

Graduates in sciences and agriculture, in the social sciences and in the humanities came next, typically earning from the low \$30,000s to just around the \$40,000 mark in their first year of work—with levels descending across the three areas listed (i.e., from higher to lower within the broader range mentioned).

Finally, those in the visual and performing arts had the lowest average first-year earnings, ranging from around \$25,000 to just under \$32,000 in their best year (again the 2007 graduates, as for most fields of study).

“Starting earnings levels in combination with earnings growth are such that two fields of study lead the pack in terms of final earnings levels: Engineering and math and computer science.”

Regarding earnings growth and final earnings levels, many of those patterns by field of study repeat, but there are also some important differences. First, starting earnings levels in combination with earnings growth are such that two fields of study lead the pack in terms of final earnings levels: Engineering and math and computer science. In these areas, average earnings eight years after graduation are around \$100,000 for the former and around \$90,000 for the latter for the 2005 graduating cohort—the cohort which is followed for the greatest number of years.

But as we have seen, earnings growth rates are at least similar across graduating cohorts, so this might be the sort of earnings trajectory later

graduating cohorts could also at least roughly expect. This amounts to earnings increases of about \$5,800 per year for each year following graduation. And note that all these numbers are adjusted for inflation—these are real earnings increases, and real increases in buying power.

Following these come business graduates, who finish at the \$80,000 mark, again for the 2005 cohort; but again with similar earnings growth rate trajectories for the other cohorts.

A broad pack of four areas of study comes next: Science and agriculture, health, the social sciences, and the humanities, for whom final-year earnings are \$68,700, \$68,300, \$61,900, and \$57,000 (in that order). Health is perhaps the most notable area of study here, because this middle ranking contrasts with their comparatively high starting earnings levels. Put differently, health graduates have the lowest increases in earnings over time. This is undoubtedly due to the strong occupation basis associated with studying in the health disciplines, and the corresponding highly structured, generally highly unionized, labour market they often enter.

These patterns also show the importance of having access to the longer-term earnings profiles provided by the tax data used here, which are in sharp contrast to the short-term outcomes available from essentially all institution-based graduate surveys, and also beyond what the National Graduates Survey goes out to (i.e., five years following graduation).

But even the struggling artists should perhaps be seen in the context of the barista line we have been fed. While it is impossible to come up with a meaningful true estimate of what baristas make (or in fact how many university graduates are working as baristas), a good approximation may be in the \$12 per hour range. If we multiple that by 35 hours per week, and allow that person to work—or at least be paid—all 52 weeks a year (not typically the case for hourly workers of the barista type), that yields an annual earnings level of \$22,150.

Even those in the visual and performing arts are beating that annual earnings level by at least a small margin right after graduation (and doing better than that in the better cohorts), and eight years later have it doubled.

Engineering, math and computer science and business graduates are besting the barista level by a long-shot even right after finishing, and go up from there. Surprising? Perhaps not, and not really where the barista story principally lays. But still, the comparison is interesting.

The much-maligned social sciences and the even more beaten up humanities are safely clearing the barista level immediately after graduation, and more than doubling it eight years later. And it must be remembered that the data reported here capture the record for *all* graduates, including those working part-time and part-year (and thus including those who are underemployed and unemployed even most of the year) as against our full-time, full-year barista standard.

In short, our research suggests that the barista story does not appear to hold up when tested against the actual earnings of university graduates' data. This means that decision makers—students, PSE institutions, policy makers—are being misinformed to the degree that this myth guides their decisions.

Now, some may argue that these earnings levels are not very high, even if they are barista-beating. But to the degree such misinformation is being corrected, or simply to the extent these data otherwise provide an empirical foundation to the relevant decisions, and discussions, we are pleased to get them into the public domain. **P**

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The author is grateful for the contributions of Michael Dubois and John Sergeant to this article.



In the mid-1990s, writes University of Regina President Vianne Timmons, women accounted for only 18 per cent of Canadian university presidents. Two decades later, in 2016, the percentage has scarcely increased to just 23 per cent. iStock photo.

Closing the Gender Gap at Canadian Universities

Vianne Timmons

Universities are great institutions, progressive and designed to promote ideas. We think of them as equalizers—ways of ensuring that graduates of all backgrounds have a step up in the world. It seems only natural, then, that they would serve as leaders in inclusivity and diversity. Despite these popular perceptions, however, there are some troubling statistics on gender and diversity that need to be addressed. University of Regina President Vianne Timmons writes that universities have a responsibility to be ahead of the equality curve.

In 1996, I accepted a job as the Dean of Education at the University of Prince Edward Island. I was excited to see that we had a woman premier, a woman minister of Education, a woman deputy minister of education, and a woman president of UPEI. I thought this proved that we women had finally made it. I could not have been more wrong. This phenomenon lasted only a short time. Soon, men moved back into these roles, and few of them were ever occupied by women again.

In the mid-1990s, approximately 18 per cent of university presidents in Canada

were women. Fast-forward two decades, and in 2016 the numbers are not much better at 23 per cent. In their 2014 paper, “Historical changes to the Canadian university presidency”, David H. Turpin, Lidgard De Decker, and Brendan Boyd conducted a thorough historical examination of changes in Canadian university presidencies, including the number of women serving as president. Their graph showing the increase in the number of women presidents in the 1990s mirrors my experience; we began to see increasing representation of women, but that representation then stabilized at around a mere 20 per cent (Figure 1).

Also notable is the fact that the number of women vice-presidents academic (37 per cent) and research (27 per cent) remains low, according to a Universities Canada 2016 study. Considering that the majority of university presidents come from vice-presidential roles, it seems that the tables are slanted against women for the foreseeable future. These numbers are doubly concerning because

they seem to indicate that we are not seeing progress toward equal gender representation throughout the academy. It is critical that administrators, when hiring, ensure that they seek out and actively recruit candidates of both genders and minority representation. This is the only way equity can be achieved.

The issue of equity also has been highlighted by many who have raised concerns about the low number of women who have been named Canada Research Chairs. There were 29 per cent as of February 2016, according to the Canada Research Chairs Program. Add to that the fact that as of 2010, the number of women full professors was barely 30 per cent in the humanities and social sciences, and worse yet, only 17 per cent in science, technology, engineering and math (STEM) as well as medical fields, according to Statistics Canada in 2010. Just by looking at the numbers, I could conclude that there is a systemic problem in our universities.

This systemic problem extends far beyond Canada. Approximately 10 per cent of universities in European Union countries, for example, have women presidents. Sweden is a notable exception, with 43 per cent of its university presidents being female, according to a 2014 article by Helen Peterson, a Swedish professor. The point is that although Canadian universities may not be lagging behind everyone in terms of equal gender representation, they are certainly not advancing the way they should be.

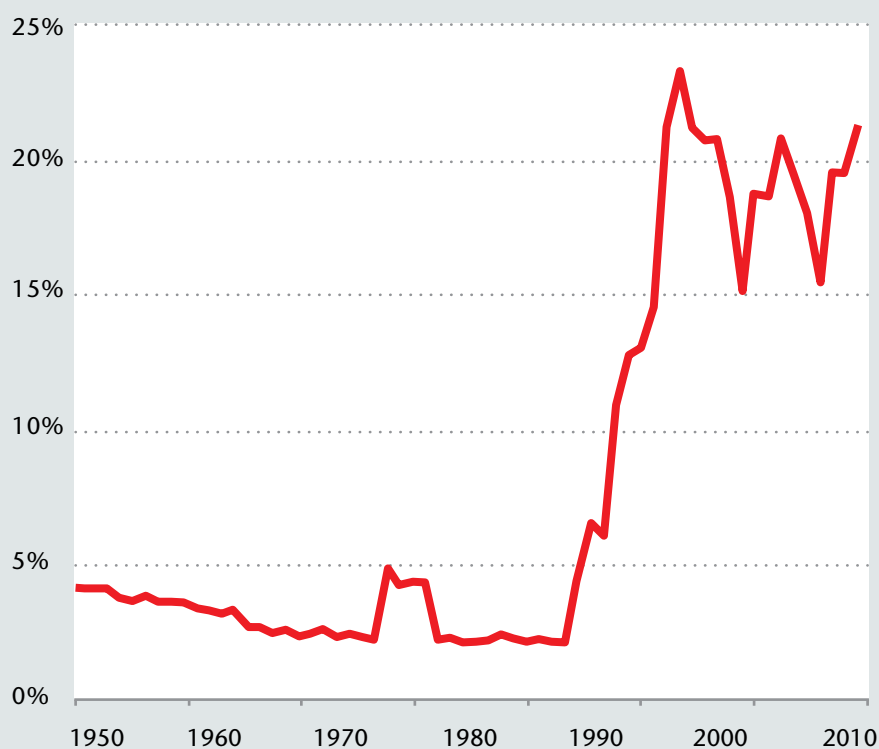
After my 1996 appointment, I subsequently became UPEI’s first woman vice-president (academic development) and the first woman university president in Saskatchewan. There are still many universities in Canada that have never had a woman president. I look forward to the day when there are no more firsts of this type for women.

The research highlighting the many barriers to women achieving leadership roles has cited reasons such as: bias against women, chilly culture, opting out, work-life balance, and confidence. There is no one factor that explains the low numbers of women leaders in academia. It seems that there are still numerous issues, not the least of which is a lack of awareness of the problem of underrepresentation of women.

Some might say that we have made progress and these changes take time. That is true, to a degree. Yet despite that reasoning, we should all be concerned about the few women we currently have in leadership positions in our universities. What is even more disturbing is the public reaction when these statistics are shared.

In the spring of 2016, there were two articles published in the *Globe and Mail* highlighting the paucity of women presidents and Canada Research Chairs in our universities. I found it fascinating to read the online comments higher education reporter Simona Chiose’s April 2016 article titled, “More female leaders needed at Canadian universities” drew. There were 25 comments, all of them negative toward women. Let me share a

Figure 1: Gender make up (% women) from 1950-2011
(Maclean’s Group)



small sampling: “More female leaders needed at Canadian universities... Why? I would argue the universities are currently being run very well thank you very much. No need for any Women leaders as far as I’m concerned.” And “right, right, right...50 years of giving women advantages over men is not enough.” Similar comments were made for the May 9 article entitled “Canadian universities fail to meet diversity hiring targets.”

At first I was disheartened. I couldn’t help but wonder: what has happened to our society that the bias against women not only still exists but is publicly expressed, and then just as carelessly dismissed? Isn’t it important that our daughters have the same opportunities as our sons to succeed and advance in their workplace? After all, Canada has been a world leader in legislating human rights for everyone. As these two articles have highlighted, and as the onslaught of negative comments demonstrates, it is time to look at our practices and collective mindset and recognize that we still have a long way to go.

“As we know, a similar situation exists for women CEOs, women on corporate boards, and women in politics. Universities are a reflection of our society, but should not in fact be a mere reflection; instead, universities should lead societal change rather than uphold the inequities.”

After initially feeling despondent and discouraged, I eventually realized that these comments are the reason we need to keep this issue public. They reflect the prejudice and bigotry still held by many in our society against not only women, but also minorities.

As we know, a similar situation exists for women CEOs, women on corporate boards, and women in politics.

Universities are a reflection of our society, but should not in fact be a mere reflection; instead, universities should lead societal change rather than uphold the inequities. This is an issue that we need to continue to study, and we must adjust our practices to ensure that they enable diversity, rather than prevent it.

What is the solution? Should universities institute affirmative action policies? Should university senior managers undergo training on bias and gender awareness? It is important to recognize that this is not simply a women’s issue; rather, it is an issue of which all of us need to be aware. I often hear that we should not be concerned about gender, because we should just hire the best person for the job. Highlighting this inequity is important because there are as many qualified women as there are men in academia. This is not about compromising; it is about awareness.

My grandmother had to leave school

in grade four to get a job cleaning houses in order to support her mother. My mother and father worked hard to ensure that all of their six children would have a university education and equal opportunities to earn a decent living. Those equal opportunities are what the generations before us fought for, especially our grandmothers and mothers. We need to honour them by revealing the ongoing inequity, exposing the views they fought so hard to eradicate, and ensuring that our own daughters have the same opportunities as our sons. **P**

Vianne Timmons, President of the University of Regina, is a strong advocate for the development of women leaders both in Saskatchewan and beyond. For her work to promote diversity within academic institutions, she has been honoured with the Senior Women Academic Administrators of Canada’s Recognition Award as well as the Inter-American Organization for Higher Education’s Leadership and Influence Award.
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CANADIAN UNIVERSITIES



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A panel of three contributors to the Canadian universities-themed issue of *Policy* magazine will discuss higher education in Canada and universities’ role in creating a more prosperous, inclusive and innovative Canada.

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Kevin Kee, dean, Faculty of Arts, University of Ottawa
Andrew Petter, president, Simon Fraser University

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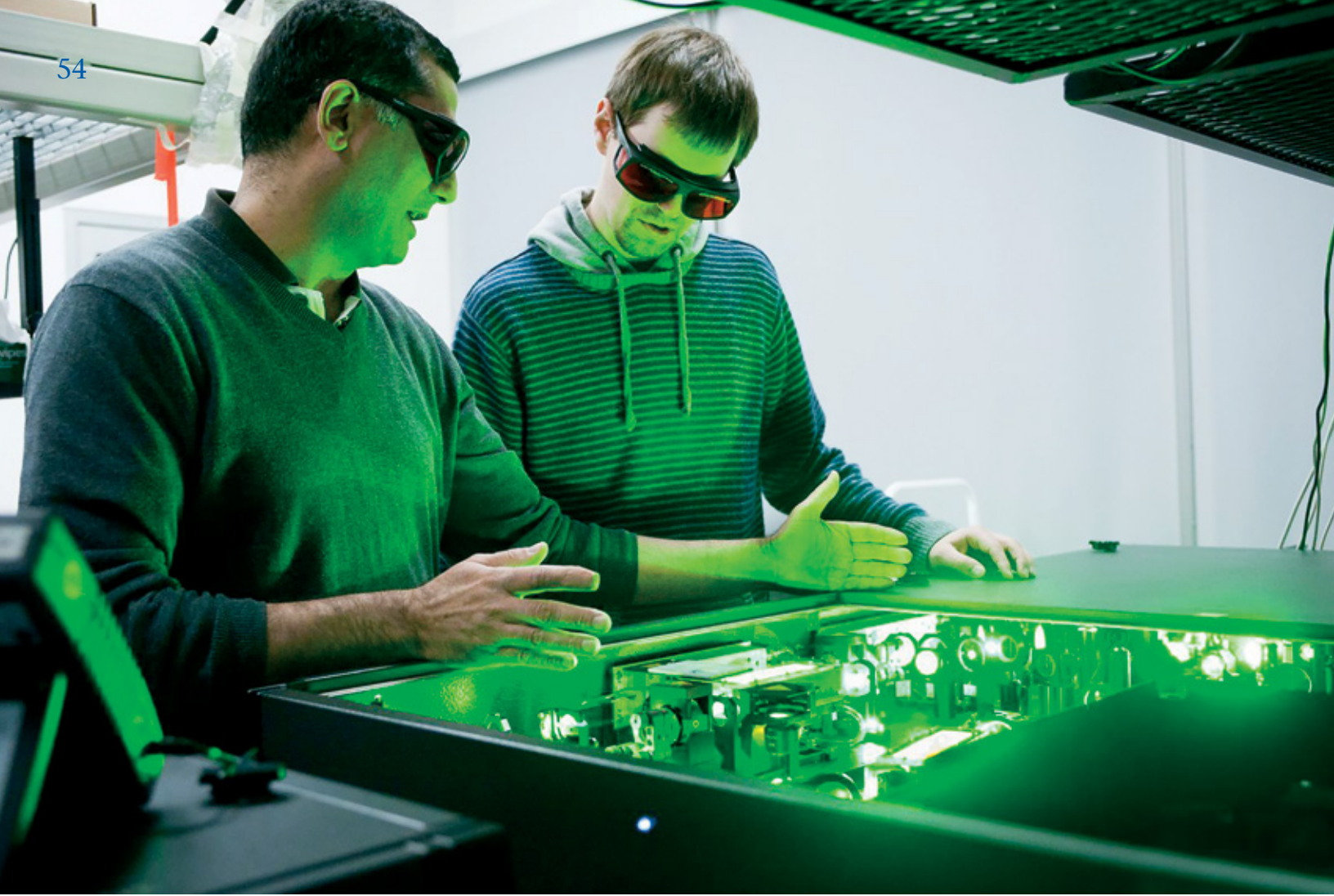
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Researchers with the femtosecond laser at SFU's state-of-the-art 4D Labs. Simon Fraser University photo.

Making Universities Canada's Innovation Accelerators

Andrew Petter

Canada suffers from an innovation gap that puts our national economy at a competitive disadvantage. While there are structural obstacles in the marketplace that are difficult to overcome, there is a huge opportunity for Ottawa to drive an innovation agenda by developing and leveraging the strengths of Canada's globally competitive universities. Universities, however, must also be prepared to rethink their policies and revise their practices to maximize their innovative potential, writes the President of Simon Fraser University.

“One can only overcome weakness by developing strengths.”

These are the words of Peter Drucker, the management consultant, educator and author, whose well-earned fame was based on his ability to convert complex organizational lessons into actionable advice. And his wisdom is particularly applicable to a problem currently plaguing the Canadian economy.

Canada has an innovation gap that is compromising national productivity

and constraining our competitiveness. That gap is the product of structural weaknesses in the marketplace that have hampered private sector research and development. At the same time, we possess a significant strength—a university system with huge research capacity and innovative potential. For a new government committed to pursuing an ambitious innovation agenda, this system provides a promising foundation upon which to build.

Addressing these points in turn, there can be no question that Canada has been falling behind in the innovation race. The World Economic Forum ranks Canada's innovation performance 22nd in the world, down from 12th in 2009. Ours is the only country in the Organization for Economic Cooperation and Development (OECD) that spends more to acquire other people's technology than the world buys from us.

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The result is a corresponding drag on productivity, especially compared to our nearest and most important trading partner. Since 2000, Canada's labour productivity growth has been one-third that of the United States—a gap that has had an inevitable, negative impact on our economic competitiveness.

A major cause of this underperformance has been our lack of invest-

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ment in research and development. Canada's total R&D investment currently sits 12th compared to others in the OECD. This deficiency can be ascribed to certain structural obstacles in the Canadian marketplace. Many of Canada's largest firms are branch plants of companies that do most of their R&D elsewhere. And small and medium-sized enterprises frequently lack the internal R&D capacity they require to stay competitive and to grow.

These are embedded barriers that defy easy policy prescriptions. So Drucker would wisely advise that, rather than trying to correct these weaknesses, we seek to bolster our strengths. Here, the university sector provides a powerful policy lever. While Canada's private sector research performance is lacking, our universities are recognized as research powerhouses. We have 23 universities listed among the best 500 in the world—a remarkable showing for a country with less than half a percent of the world's population.

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It is true that between 2006 and 2014 Canada fell from third to sev-

enth place among OECD countries for its HERD intensity (the percentage of gross domestic product spend on Higher Education Research and Development). However, the last federal budget injected \$95 million in new funding to the three federal granting councils—an important first step in reversing this trend and restoring Canada's standing in this key indicator.

Here, then, is the basis for a policy solution—a clear opportunity to overcome weakness by developing strengths. The federal government has already made some important moves in this direction. It has begun to restore Canada's support for higher education research funding and has committed significant funds to a proposed innovation agenda. It is vital that this process continue—and that government takes full advantage of universities' extraordinary research strengths and innovative potential in pursuing that agenda.

But the challenge is not government's alone. If universities are to drive Canada's innovation agenda, we too must heed Drucker's call to overcome weakness by developing strengths.

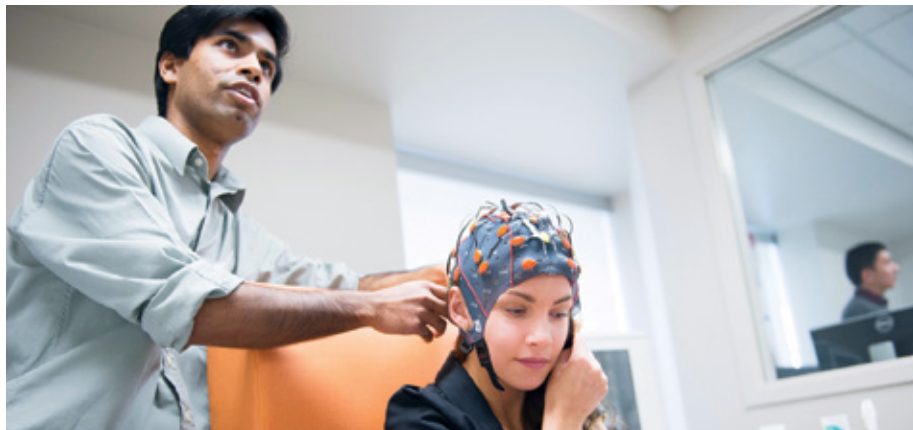
First, universities need to increase opportunities for researchers to engage with industry and civil society to inform their research activities, and to increase the chances of their discoveries and innovations succeeding in the marketplace. This is not as obvious as it might seem. The traditional model of university knowledge mobilization involves researchers making discoveries and developing ideas in isolation from the community, and then trying to push them out into an untested and unfamiliar market-

place. Not surprisingly, relatively few survive the journey. Indeed, the gap between university research and the marketplace is so pervasive and so well known that it has its own name—the ‘valley of death.’

Against this paradigm, Simon Fraser University (SFU) has enjoyed success by enabling researchers to connect with industry and the community early in the process to enable their research to be pulled to known market needs and opportunities. Our *4D Labs*, for example, is a state-of-the-art materials science and engineering facility that undertakes research in response to information received from industry partners. Another model, *Innovation Boulevard*, is a community-based venture led by SFU and the City of Surrey that brings university researchers together with health care providers and industry partners to develop new medical technologies.

A second goal for universities should be to equip their students with practical knowledge and skills, and with entrepreneurial abilities. One way to do this is to expand cooperative education. This is already an area of success; more than 80 Canadian post-secondary institutions send over 80,000 students a year to co-op placements, where they learn hands-on skills and find practical applications for their theoretical training. The University of Waterloo has one of the largest co-op programs in the world, and other schools such as the University of Victoria and SFU are working hard to close the gap.

Universities must also do more to provide entrepreneurship training opportunities to students in all disciplines. Marketable discoveries and ideas arise across the university, not just in business schools. It is therefore important for all students to have access to programs that help them gain the knowledge and support they need to bring those discoveries and ideas to the marketplace. To this end, SFU recently initiated an undergraduate certificate program in entrepre-



A portable brain scanner is one of many medical technologies being developed at Innovation Boulevard, a venture led by SFU and the City of Surrey. Simon Fraser University photo.

neurship that is available to students across the university, as well as a certificate program targeted at graduate students in science and engineering.

A third strategy for harnessing innovative capacity is creating university-based incubation and acceleration programs and networks that provide faculty, students and community partners the support they need to launch successful business ventures.

A leading example is *I-INC (Incubate Innovate Network of Canada)*, a pan-Canadian, technology accelerator network established by Ryerson University, SFU and the University of Ontario Institute of Technology. The network's West Coast hub, SFU's *Venture Labs*, has become B.C.'s largest business accelerator, and its leading accelerator for capital formation and science-based venture creation. Internationally, Ryerson, SFU and the Bombay Stock Exchange Institute are partnered in *Zone Startups*, the first Canadian-led accelerator in India, and SFU has partnered with *Hanhai Holding*, a high-tech conglomerate connected to leading Chinese universities, to establish a China-Canada accelerator network.

Many universities have created business incubators specifically designed to support student entrepreneurs. SFU's *Venture Connection* was the first in Western Canada, and is available to students from across the university.

Innovation is not just about generating profit. It's also about producing

value for people and for society. So, universities need to foster programs that nurture social innovation. An SFU example is *RADIUS (RADical Ideas Useful to Society)*, a social innovation lab and venture incubator that is open to all SFU students, as well as to others. Since it was established in 2013, RADIUS has supported more than 80 ventures and fostered numerous programs, the newest of which is the *RBC First Peoples Enterprise Accelerator*.

There are two major challenges to be addressed if Ottawa is to succeed in advancing its innovation agenda—one for government and one for universities. Recalling Drucker's advice, the course for government seems clear: the best way to overcome weaknesses in Canada's marketplace that inhibit private sector R&D is for Ottawa to develop and leverage the research strengths and innovative potential of this country's universities. And for universities, the path is no less obvious: even as we look to government to invest in universities as a means of building an innovation economy, we must be prepared to rethink our policies and revise our practices to maximize the value of that investment. **P**

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After voting in record numbers in last October's election, students are definitely engaging with the new government in Ottawa, with student aid very much on the agenda. Universities Canada photo.

Canada's Student Aid Programs: Making Money Less of an Object

Patrick Snider

Student issues are taking centre stage with Canada's new government. Student financial aid is a top priority, and the changes announced so far go a long way in improving fairness, progressiveness and impact. There is more to accomplish however, with increased support needed for all students who face shortfalls in funding, especially those in advanced study programs or following non-traditional pathways into education.

After turning out to vote in record numbers last year, students are now a bigger focus of federal policy, with the Trudeau government taking concrete steps to address the issues they are facing. One of the top concerns for students is financial aid—ensuring students of all ages and backgrounds have the support to access higher education as far as they are capable.

Canada's federal government has provided financial aid to students in one form or another since the "Dominion Student Aid Program", established in 1939 to help a few thousand students access higher education in partnership with the provinces. The number of students accessing aid has grown over the years, with roughly half a mil-

lion students now receiving support through the Canada Student Loans Program (CSLP).

Student aid programs began with the principle of supporting students based on financial need, to help ensure that funds are used efficiently to help those students who otherwise could not attend higher education. This was the founding idea behind the CSLP, established in 1964 to enable the postwar generation to attend post-secondary education in record numbers.

These programs made a major impact, and post-secondary attendance reached historically high levels, with over 150,000 full-time students in post-secondary institutions for the first time in 1964. However, those levels are still far below the participation rates we see today, with over 1.5 million studying full-time and over a half-million studying part-time in Canada.

In the 1980s, Canada saw the introduction of a number of interest-relief programs for students who had graduated but faced difficulty in repayment due to being sick, unemployed or disabled. Other factors were introduced as a qualification for aid over the years—in the 1990s, grants were introduced for students who qualified by being low-income and attending part time programs, for disabled students, and for women in certain doctoral fields.

The increase in grants expanded over the following years; Canada Access Grants, Canada Study Grants, and the Millennium Scholarship Foundation all contributed to growing the amount of aid for students. In 2009-2010 these were merged into the Canada Student Grants Program, a broader program that universally supports students based on income qualification, as well as factors such as disability and dependants.

The changes announced in this government's 2016 budget follow the principle of supporting students based on need, while pushing the student financial aid system into an even more progressive and effective direction. Increasing amounts of

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funding towards the student financial aid system will improve support levels, reduce debt burdens, and encourage more low-income students to attend higher education, while changes to the structure of how aid is delivered will improve fairness and progressiveness.

Student advocacy organizations like the Canadian Alliance of Student Associations (CASA) have long been involved in developing new directions in student financial aid. One important achievement for CASA was the refocusing of a significant portion of the funds in the Millennium Scholarship Foundation towards the Millennium Bursary Program, ensuring that 95 per cent of funding was directed toward students with the greatest financial need.

Students continue to work with policy makers from all parties to develop new directions in student financial aid and to address student issues—under the previous government, CASA successfully advocated for the provision that no student would be punished in their financial aid for earning an income while attending school. We supported opposition efforts to improve protections for unpaid interns. And under the present government, we have given advice on supporting their development of an expanded granting system, and in favour of moving regressive spending on tax credits into more progressive up-front funding by nearly \$329 million per year for increased grants, and \$216 million per year for more progressive eligibility thresholds.

The reason for supporting these changes is clear—they have the greatest impact and put funding di-

rectly into the hands of the students who need it.

Before the changes announced in Budget 2016, spending on tax credits meant that a significant number of high-income students were receiving considerable government funding, while many low-income students faced shortfalls and were unable to afford their tuition and living expenses. As of 2018, 44 per cent of loan applicants are expected to have financial needs that exceed the maximum loan limit, according to the CSLP actuarial reports. By eliminating those tax credits and moving the funds to grants, more students should be able to afford higher education without facing shortfalls in funding, and they should also see their debt loads on graduation reduced as well.

Other changes will contribute to making the whole system more progressive. As of 2017, students will no longer be divided into two “low income” and “middle income” categories for grants, where earning \$1 more than the “low income” category will deprive a student of thousands of dollars in support over their education. Instead, grants will begin at a maximum level, and phase out gradually as family income rises. This will improve fairness for many families close to the qualification lines for each income threshold, by eliminating any arbitrary funding cliffs.

The financial aid system is still not perfect—even after these improvements, estimated spending on grants may still be less than the estimated spending on the remaining tax credits each year. The Parliamentary Budget Office identified this issue with many of the programs, which have

primarily benefitted higher income families. This is not a state that could be continued by a party that emphasized progressive spending measures in their election platform.

A number of positive changes announced in 2015 will be lost, though in some cases this is only temporary. The previous Conservative government promised a reduction in expected parental contributions, as well as the elimination of penalties on student income for working while receiving financial aid. While the reduction in expected parental contributions will be lost indefinitely, the elimination of penalties on in-study income will return when the Liberal government implements the new “flat contribution” measure in 2017. This change will require students who receive financial aid to contribute a minimum amount of money themselves, with the specific amount to be determined – but they will not be penalized on top of that amount, regardless of the amount they earn while in school.

Unfortunately, the changes in expected parental contributions will not be carried forward. By comparison, in Alberta, the government has already eliminated that assessment for loans, due to

the different amounts of support that different families are willing or able to provide, while maintaining an income test for low-income grants. This example strikes a balance of fairness by targeting non-repayable aid where it is needed most, but keeping loans available for those who need them.

Furthermore, changes to student financial aid will continue to fall short for the only group of students who are still excluded from receiving grants—graduate students. This group will be losing the limited support they receive from their education and textbook tax credits, and, unlike the undergraduate and college students, they will not be receiving any increased grant amounts to compensate for that loss. It is truly unfortunate that this government is cutting support for students in advanced degrees, even in light of those levels of education seeing increased enrolment and demand in the labour market.

There is hope moving forward, however. The value of the savings from the tax credits that were cancelled in the 2016 budget are estimated to be \$795 million for the education amount, and \$130 million for the textbook amount in 2017 according to the Department of Finance’s tax expenditure data. These funds have

not yet been fully allocated to the grant system. In the current budget, grants are expected to increase by \$468 million for that year—a substantial amount, but still below the amount being saved in tax credits.

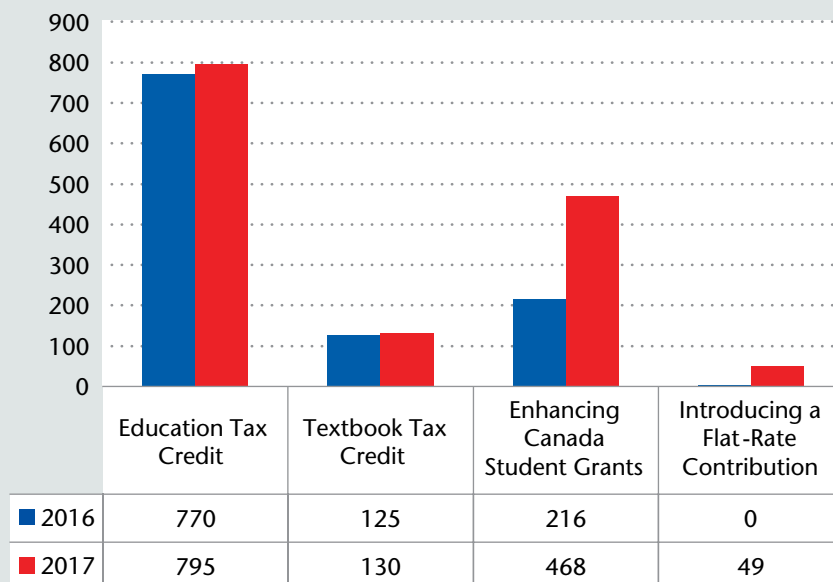
This difference represents more than enough fiscal room to extend grant support to graduate students and finally include them in the federal grant system, as well as making other changes in the future to improve support to students from all backgrounds. It is our hope that the government will continue to support students at every level of study, based on what their legitimate financial need happens to be, ensuring that all students are able to progress as far in education as possible.

Furthermore, while many students are young people, the government must not forget the significant numbers of mature and returning students who are striving to improve their education, retrain for a changing economy and advance their careers. Policies that assist those students, that take into account the needs of those returning to higher education after earning an income, accumulating assets, and focusing on programs that respond to their educational needs will continue to be necessary.

Aid for students will continue to be an issue and an area for improvement, as new groups of Canadians are brought into the higher education system, cost challenges continue to mount, and Canada continues to require a better and more flexible education system for the economy of the 21st century. The past decades of development have gone a long way toward opening up education to more people than ever before, and with the changes introduced by the Liberal government, that project continues. **P**

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Figure 1: Value of Tax Credit and Grant Changes (Millions)





Prime Minister Theresa May is welcomed by staff as she arrives at 10 Downing Street for the first time as prime minister on July 13.
Tom Evans/Flickr photo.

Life After Brexit: When Nothing is Clear, is Anything Possible?

Jeremy Kinsman

*Britain's narrow but decisive vote to disengage from the European Union may be digested by history as a bafflingly self-sabotaging act by a Western democracy, as the pinprick that deflated the European project and destabilized the global balance of power—or as something else altogether. Veteran diplomat Jeremy Kinsman, whose Brexit vote post-mortem piece for *opencanada* in July (<https://www.opencanada.org/features/brexit-post-mortem-17-takeaways-fallen-david-cameron/>) went viral in the UK, writes that the process may beget more possibilities than we can now foresee.*

The *New Yorker* cover illustration told one side of the Brexit story: A John Cleese avatar, in a bowler, clearly representing the Ministry of Silly Walks, steps off a cliff into an abyss.

From the other side, former Conservative Foreign Secretary William Hague soothed a Toronto audience with the bromide that all will be for the best once the markets quiet down and the UK's partners adapt to the new reality.

But this new reality is imaginary. No one knows the economic costs or what will happen in the markets or in the unprecedented negotiations with the EU.

There is already ominous economic contraction; GDP is in negative growth

and the pound is down by 12 per cent, though that helps some exports (45 per cent of which go to the EU); job listings and consumer and business confidence have tanked; capital expenditure is flat, though some offshore bargain-hunters have swallowed some cheaper British assets.

The stock market looks positive if you count in cheaper sterling, but not in the vital financial services sector (10 per cent of GDP and 11 per cent of Treasury revenue), which will suffer most if the UK has to quit the EU's single market and London forfeits its status as the number two global financial hub. After a pummeling of their shares, some banks have announced lay-offs.

Prime Minister Theresa May's first task was to calm anxiety and radiate confidence and competence. May will now build a plan for Brexit negotiations, to begin after the end of the year. As she sets the stage for a probable fall election to get her own electoral mandate while the Labour Party seethes in disarray, her speeches already catch the populist zeitgeist with praise for "ordinary working families" and indignation over "unscrupulous bosses."

Doubling down, she warns that "Brexit means Brexit." But beyond channeling the nostalgic yearning of "ordinary people" for distance from Brussels, Brexit's meaning is unknowable. Only time and events will clarify what it means. Meanwhile, May will play for time.

And, with a year being an eternity in politics, anything can happen to change the Brexit calculus.

Just over half of the 72 per cent of eligible voters who cast ballots on June 23 agreed the United Kingdom should leave the European Union after 43 years of membership for a slew of reasons, including: tribal English nativism; anti-immigration sentiment; local alienation from a globalizing, changing, and unfair world; belief the European economy was faltering if not failing; conviction historic British legal sovereignty

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was undermined; and misinformation about the costs of EU membership.

Though essentially negative, these motifs formed the building blocks of the emotive identity-based campaign to “take back control of our country” whose magical thinking promised a positive future.

The lacklustre “Remain” campaign concentrated on the negative risks and costs of Brexit, and couldn't or wouldn't compete with a positive narrative about the UK's membership in the EU, whose merits went unmentioned.

May wants to persuade people to get over and past the recriminations about the referendum campaign to mobilize support on making it work. She needs to herd political cats and lead the bureaucratic machine through an unprecedented process to obtain an outcome that somehow secures Britain's benefits in the relationship to the EU while cutting its risks and costs.

But nothing is clear. What the UK gets out of the exit process largely depends on its 27 EU partners, who are civilized, but not inclined to reward British defection. There are competing psychologies on either side of the Channel.

The vote to separate Britain from the EU may be seen by some in the UK as the paramount European political event since the Berlin Wall fell, but within the EU it arrives on the heels of massive challenges from the financial collapse of Greece and its implications for the Euro's survivability, and then the equally divisive refugee crisis (both

areas from which the UK had opted out). The crises strengthened populist and nativist national identity surges that are roiling European politics leading into all-important French and German elections in 2017.

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The Brexit vote actually had a countering effect of boosting support for the EU in Germany, France, Spain, Italy and elsewhere. But new dangers lurk from precarious Italian banks and nerve-wracking episodes of jihadist terrorism, such as the Nice massacre. The last thing the EU needs is an extended and diversionary quarrel over Brexit. They want to get it over to enable focus and progress on monetary and immigration reform and cooperation, probably easier without the misery of having to wrangle day and night with Eurosceptic British colleagues over what has been for years an almost existential incompatibility over the union's existential goals.

For many older Europeans affected by the memory of Europe's brutal wars, the project aimed at shared identities and greater political as well as economic and financial union. Older



Boris Johnson, who led the Leave forces in the Brexit referendum on June 23, was May's choice to be foreign secretary. Number 10/Flickr photo.

Britons, who have ingested a very different national wartime narrative, failed to warm to the identity project, especially one rooted in the “European social model.”

Though Prime Minister May and the new and provocative foreign minister, Boris Johnson, have assured European partners that a non-membership relationship will be more heartfelt and productive than the quarrelsome past, gestures of the heart won't carry the day.

The vehicle to negotiate Brexit is the never-used Article 50 of the EU's Lisbon Treaty, which provides for a two-year window for the UK to work out a new relationship with EU partners to replace membership in the EU single market, or fall back on WTO tariff terms. As negotiations go, the UK is the “demandeur.” Because British dependence on the EU is greater than EU dependence on Britain (45 per cent of UK exports go to the EU; 8 per cent of the EU's to the UK), the UK has more to lose in concrete terms, whatever the fixation of nativists on symbols of national sovereignty.

To stay in the single market, the UK has to embrace its “four freedoms”—of trade in

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goods, in services and in movement of capital and labour—that the EU holds to be indivisible. But since UK polls indicate that immigration is the public's number one concern, the free movement of labour has been deemed politically unacceptable, a position that now puts the benefits of the single market out of reach.

Actually, Britain is overcrowded but not overrun, and not by European workers. So the UK side could offer to settle for a bit more immigration control in return for only a bit less

of a single market. But this would be unlikely to preserve London's current privileged status under an exceptional EU regulatory “passport” as the leading financial centre for Euro-based transactions, contributing to real economic distress.

May has asserted “There will be no second referendum,” in a put-down of speculative scenarios for a re-do of the June 23 ballot.

But what if those in the EU—the Dutch, Danes, Austrians, Swedes, Poles, Irish, and maybe the Italians and Germans, as well as European Council President Donald Tusk—who have also been cooling on the mantra of an “ever-closer union” proceed beyond talk and begin development of a looser union with more member-state freedom of movement, and even a “variable geometry” in which different members would join different communities of common policy?

If that begins to emerge, against evidence of regrettable UK economic distress, would Britain re-think its exit after all?

The choice of Brexit—whatever it means—was made by only 37 per cent of the country's adults. Former UK Europe Minister Denis MacShane points out that earlier UK referenda required the assent of at least 40 per cent of eligible voters to have valid standing. There was no such requirement on June 23. Nor is there any constitutional guidance on this or on any other aspect of a plebiscite that has, so far, bypassed the House of Commons.

David Cameron called this fateful vote to settle a matter of party politics and to clarify the UK's position in the EU.

The result is that nothing is clear. And that may make anything possible. **P**

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A Hole in the Firmament: The Legacy of Mike Robinson

Robin V. Sears



Mike Robinson: A devoted family man, and a leader by example in politics and consulting. He died suddenly, on Canada Day, at his family's beloved summer home in Normandy.

Leadership can be dazzling and in your face: Margaret Thatcher before her decline. Sometimes razor-sharp in intellectual and emotional intensity: Barack Obama at his best. Leadership can also be obvious only when you look hard. It doesn't blot out the sun, but its gravitas is compelling when you give it attention: Lester Pearson or Angela Merkel.

Then there are the leaders who only other leaders notice because their leadership skills are so totally invested in people—in helping friends, colleagues, political allies, clients shine—that the spotlight rarely falls on them directly.

Until they are gone.

If their disappearance is sudden and shocking, then strangely, the ache their passing inflicts throws their powerful legacy into sharp relief. You realize that there truly is a hole in the firmament of your community through

which they have passed, forever.

Michael Robinson was such a leader. Almost a caricature of Canadian modesty, it was a public modesty that veiled a strong pride in his success, and a resolute conviction about "the right thing to do."

As Mike's early consulting partner, Bill Fox, has pointed out, academic research demonstrates that a large part of our values, information and knowledge flow from leaders found at every strata of society. Those leaders can spot each other a mile off.

Like Harry Near, another founding partner of his firm, Mike's personality was so effusive it disguised a deep intuition and strategic understanding of issues, policy and opportunities. But attentive clients also saw the steel behind the smile.

Mike's life was about people. They were his joy, his focus, his product,

his genius. His beloved family—to which his sincere devotion was exceedingly rare in the vain world of politics. His political family—whose many strange members rarely ruffled Mike's acceptance of humanity and its every wart; again rare in the factional environment of party politics. His friends, colleagues, students, and clients – who numbered in the hundreds, and were rarely forgotten, never rejected.

He was one of those rare leaders whose joy was the success of others, who led by example—an example that was often a rollicking laugh at the absurdities of life. He understood that truth, character and courage are always more reliably revealed during a long and loud meal with friends than in a PowerPoint presentation. So he did a lot of the former and unhappily endured the latter.

Mike took an uneasy and hesitant orator and transformed him from a businessman into a powerful political leader. It took a decade, but that was another feature of his leadership style—endless resolve and unflagging patience. Paul Martin joked at Mike's celebration of life – to which virtually the entire Ottawa political and government relations community showed up—that his earliest memories of their life on the road were of staring out the car window as Mike, gently but relentlessly, recited the long list of gaffes and flubs in the speech Paul had just delivered.

Harry Near joked that he and Mike rarely had a disagreement in all their years building Canada's largest independent public affairs consulting firm, the Earncliffe Strategy Group. Harry's role was to say no, to Mike's confident yes—to new people, new projects, new spending—and then

resisting The Badger, as Mike was always amused to be called, as he tried to wear him down.

Mike would cheerfully spend lavishly on celebratory bottles of wine for friends, or donations to favourite causes. But he also delighted in knocking a landlord's rent down by 10 percent, or nudging a party donor from three digits to four, even if it took months of badgering.

He rescued the Liberal party from the financial devastation of the Turner years, then turned around and raised more money for Martin's leadership campaign than any in Canadian history. His skill was grounded in a formidable intellect, rarely flaunted. You don't complete the *New York Times* and *Financial Times* crosswords, every day in pen, without one.

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In the short weeks since his sudden departure, friends wrestled with the

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gap he left behind, asking themselves “What would Mike have done?” at the first tough decision. Those who depended on his mostly invisible guidance—the smiling nudge at precisely the right moment, the reliable hand on the tiller, not only ache with loss but flinch slightly at doing it without him.

Leadership and its development are mysterious. Like beauty, or charisma, you know it when you see it, but it's hard to describe and harder still to create. Wesley Clark, the savvy American general who engineered an end to the Balkan conflicts, is a student of leadership. He has a marvellous line about the challenges of leadership training:

“In the US Army we estimate it takes 23 years to instill the qualities of leadership to become a three-star general, that's the average career time....and we expect every 23 year-old green lieutenant, on his first day in combat to show leadership!”

His point being that leadership can be reinforced and polished, but you also need the basics of character. Mike acquired a tough hide enduring the harsh rituals of a famous English “public” school, and then was suddenly plunked down in 1950s Calgary, from urbane London to rude cowboy country. Character-building, no doubt.

Mike was rarely polemic, let alone partisan about his convictions, yet they were deeply held. He astonished friends at his regular table at Ottawa's Métropolitain Brasserie—the political village's “cafeteria”—just before the last election. He was furious about Canada buying the F-35 fighter. Bright red in anger and indignation, he declared that the Liberals had to simply say “No, goddamit. No!”

Surprising was his rare fury and his refusal to back down despite loud teasing about being an “old-aged peacenik”. It was a rare sight of one of Mike's passions, usually carefully guarded. The waste of scarce public resources on “nonsense” was one of them.

Politics and corporate leadership are famously obsessed with winning—ensuring in a zero-sum competition, that your competitor knows he will lose any contest. At poker, Mike was typically alpha male—winning mattered.

About the more important victories, in politics and business and life, Mike was comfortable—indeed happiest—with shared success. He would sigh sadly at partisans who practised shoot-the-wounded politics. “What's the point?” he would mutter. “Don't they see how bad they look?”

By now, the hole in the firmament has begun to shrink, for those to whom Mike was at the centre of their lives. The firm had begun a transition to the post-Harry and Mike era more than five years ago and has already begun to demonstrate the success of their foresight. Harry and Mike were enormously proud of the next generation of leaders at their firm, whom they had so carefully nurtured. Painfully, the final steps in succession were taken only days before his passing.

So now the anxious question, “What would Mike do?” will become a nostalgic talisman among friends and colleagues. Perhaps eventually, it will be the touchstone that grants re-assurance that you are on the right path—that Mike is looking down with a large glass of red wine in hand, smiling. **P**

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Column / Don Newman

Trump's Long Shot

In his churlish, self-aggrandizing speech accepting the Republican Party's presidential nomination, Donald Trump gave the game away.

Without actually admitting it, he laid out the strategy for defeating Hillary Clinton and capturing the White House in the election on November 8.

"When I'm president," he shouted, "we will make things again in Wisconsin, in Illinois, in Michigan, and Pennsylvania."

That means he will continue running his back-to-the-future campaign aimed at disaffected, disenfranchised white men with limited education. He will continue to promise he can bring back the economy of 35 years ago, when well-paid manufacturing jobs were available to people like them.

And he will focus his campaign and his promises on those four states he named in his speech that almost never vote for a Republican presidential candidate, but are highly susceptible to his message this time.

American presidents are elected by the Electoral College, not by the direct votes of the voting public. Each state has the same number of votes as the number of seats it has in the US Senate and the House of Representatives. Each state has two senators, but larger states have more seats in the House of Representatives, so more votes in the Electoral College. In presidential politics, bigger is better.

So, 435 Electoral College votes from the House, and 100 from the Senate. In addition to the 50 states, Washington D.C. also has three Electoral College votes. That means there are

a total of 538 votes available. A candidate must win a majority—270—to be elected president.

A candidate gets all of a state's votes in the Electoral College by winning the popular vote in the state. It is winner take all, with the exceptions of Nebraska and Maine, where the winner of the statewide popular vote receives two votes in the college, while one vote goes to the winner of each of the state's congressional districts, three in Nebraska and two in Maine.

There is no second place. Even with the narrowest margin of victory in the popular vote all the state's votes in the Electoral College go to the winner.

Those states ringing the Great Lakes mentioned by Trump are among the biggest in the United States, rich in Electoral College votes. They used to be the industrial heartland of the US; home to the automobile industry, but also home to much of the country's heavy industrial base.

Now they are collectively known as the "Rust Belt." Many of their factories are shuttered, the high-paying, unionized jobs gone, gone to countries like China and Mexico.

The countries where the jobs have gone pay low wages, and have an ample supply of people willing to work for them. The products they make are not for their domestic markets, but are exported back into the United States because of either low or non-existent tariffs in the US.

The people who worked in those manufacturing industries are now out of work, or working service in-

dustrial jobs for \$15 an hour instead of unionized manufacturing jobs for \$40 an hour.

In the primaries, many registered as Republicans, voted for Trump and his promise to re-impose tariffs to bring back American manufacturing from overseas, and provided his unlikely victory.

In the 2012 election, Republican candidate Mitt Romney won 206 Electoral College votes, 64 short of the 270 needed to be elected president. He did not win any of states named by Trump in his speech.

Collectively, Wisconsin, Illinois, Michigan and Pennsylvania have 66 Electoral College votes. Add that to Romney's total four years ago and Trump is over the top. To add icing to the cake, if he wins those four states he is also likely to win Ohio, another rust belt state that swings back and forth in presidential elections but almost always goes with the winner.

That would give Trump another 18 votes in the Electoral College. With a total of 290 votes, Hillary Clinton would have 248 Electoral College votes and her dream of being the first woman president would be in ruins.

It is still something of a long shot for Trump to win so many states that are usually safe for the Democrats. But then his chances of being the Republican nominee for president were a long shot, too. **P**

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