CANADIAN COLLEGES & INSTITUTES

THE GLOBE AND MAIL FRIDAY, FEBRUARY 26, 2016 SECTION CICan

Future-ready

Working with industry and social sectors, Canada's colleges and institutes train 1.5 million learners of all ages and backgrounds.

The challenge originated halfway across the world, yet the answer was found at Mohawk College of Applied Arts and Technology in Ontario. When a headlight bracket of a vintage Rolls Royce in New Zealand was damaged, the owner reached out to a fellow car aficionado in possession of the same model in Canada.

The question was how to replicate the broken part when the original moulds for such car parts have long been lost and creating plans with computer-aided design would be too time-consuming. Fortunately, this is the kind of problem Mohawk's Additive Manufacturing Resource Centre (AMRC) is equipped to tackle. Stephanie Childs, a mechanical engineering co-op student, explains the solution: "The local owner brought the part to us. We scanned it and printed off a replica."

What sounds like an easy fix involves a highly specialized process of taking a physical part, changing it to a digital file and then creating a physical – and functional – object with the region's only metal 3D printer. It's the kind of work Ms. Childs gets excited about. "Seeing a project go from concept to working part, that's what I love," she says.

The same process applies to additively manufactured products, Ms. Childs explains. Industry partners bring design concepts and work with the AMRC team to convert them into a part, which then can be improved upon using the new technology. The outcome helps companies that operate in a variety of sectors.

Such close partnerships with industry, particularly small and medium-sized enterprises, are the hallmark of Canadian colleges and institutes, which, last year alone, worked with over 6,300 partners in all sectors, says Denise Amyot, president and CEO of Colleges and Institutes Canada (CICan).

These efforts towards developing new or adapted products, services, technology and processes contribute to the competitiveness of Canada's businesses, she believes. In colleges and institutes across the country, research initiatives are underway to provide answers to challenges in areas like natural resources and energy, environmental science, health, information and communications technologies, manufacturing and social innovation.

Students at Niagara College, for example, have created an award-winning non-alcoholic beer, inspired by a request from Mothers Against Drunk Driving. A Red River College team developed a line of frozen gluten-free poultry products. And students at NAIT researched the role of peat moss in the reclamation of abandoned wells.

"Last year, we had over 32,000 students involved in applied research," says Ms. Amyot. "This represents only three per cent of our student body; just imagine the potential that still exists."

Colleges and institutes' contribution to the economic well-being of their partners is well known and appreciated, she adds. In fact, applied research projects at colleges and institutes currently receive more support from the private sector than federal government funding.

And it's not only the industry partners who reap the benefits – students also gain relevant applied research experience and skills that prepare them for their careers. For Robert Gerritsen, professor at Mohawk's faculty of mechanical engineering technology, the Additive Manufacturing Resource Centre is aptly named. "It's a resource not only to industry, but also to our students," he explains.

Applied research, Page CICan 2

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> is president and CEO of Colleges and Institutes Canada

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PATHWAYS

Accessing a full spectrum of educational experiences

A seamless post-secondary education system – which allows students to pursue diverse pathways according to their individual needs and conditions – helps to address the need for advanced knowledge and skills in the market place, and Canada's post-secondary institutions are partnering up to make transitions easier.

The college with the highest transfer rate – both per capita and student number – is Langara College in Vancouver, B.C., which has a strategic plan that emphasizes being "Canada's pathways institution," says Lane Trotter, Langara's president.

Experiences, Page CICan 5

SUSTAINABILITY

One-of-a-kind partnership creates new potential for resource management

The Hannin Creek Educational Facility near Candle Lake, Saskatchewan, provides unparalleled opportunities for learning and applied research, all made possible by a partnership between Saskatchewan Polytechnic and the Saskatchewan Wildlife Federation.

"Both the facility and its location on the Northern Great Plains are truly unique," says Dr. Hamilton Greenwood, program head of natural resources technology programs at Sask Polytech. In the secluded camp – about 10 kilometres away from the closest dwelling, in a boreal forest game preserve – students practise skills such as surveying, mapping and monitoring, water quality testing, and bird and fish species identification and anatomy.

Working with advanced technologies such as unmanned aerial vehicles and hydro-acoustic sonar helps students prepare to meet the sector's increasingly sophisticated, complex demands.

Environment, Page CICan 11

COLLEGES & INSTITUTES

OPINION

Renewing infrastructure and supporting innovation go hand in hand

By Denise Amyot,
President and CEO, Colleges and Institutes Canada

Colleges and institutes train Canadians with the skills they need to succeed, and offer invaluable expertise and resources to local businesses and organizations in support of growth and innovation. Too often, however, the ability of these institutions to contribute to Canada's success is constrained by limited access to funding for applied research and aging and inadequate infrastructure.

Canada's economic challenges and increasing global competition mean that innovation and creativity must inspire and infuse everything we do. The new Liberal government seems to get this, as evidenced by its promise to invest in a new innovation agenda. There is also reason to hope that new infrastructure funding will be available to colleges and universities, to increase enrolment capacity in programs where labour market demand outstrips supply and to bolster the research and development facilities local and regional partners want to access.

Colleges and institutes play an essential role in Canada's research enterprise, acting as community hubs for the transfer of new technology and new knowledge into the economy while stimulating growth and social innovation at both the local and national level. Last year alone, Canadian colleges and institutes hosted over 760 specialized research centres and labs and partnered with over 5,502 local businesses and community organizations. However, their ability to increase these figures and the economic and social impact they represent is limited by aging infrastructure, outdated equipment and small funding envelopes.

Aging facilities are a growing concern for colleges and institutes across Canada. Half of their existing infrastructure currently exceeds the standard 40-year life cycle. The consequences are evident in the growing wait lists for programs such as nursing, engineering technologies, carpentry and welding. Employers are offering the jobs that our communities need to prosper, but a growing number of institutions are struggling to meet their demands.

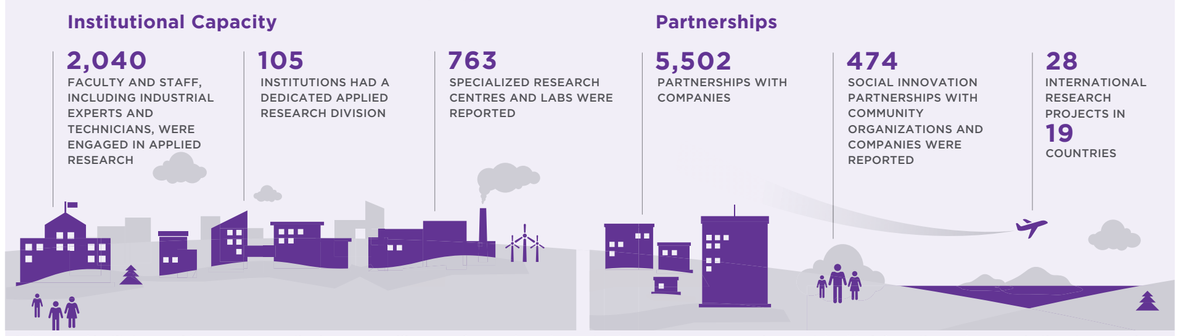
This is also affecting colleges and institutes' ability to support innovation, which requires access to the latest equipment and technologies. Sophisticated simulation devices for new approaches to health care delivery, 3D printers for advanced manufacturing and testing facilities for energy efficient construction techniques are all required to keep companies competitive and train Canadians for the jobs of tomorrow. Employers can also turn to well-equipped colleges to provide skills upgrading and retraining for their existing employees.

> Canada's economic challenges and increasing global competition mean that innovation and creativity must inspire and infuse everything we do.

Colleges and Institutes Canada (CICan) members across the country estimate their total funding needs for deferred maintenance at $1.6-billion, with 800 projects fully planned and ready to start as soon as funding is available. Colleges and institutes also have up to 200 new construction projects ready to go, valued at $6-billion. Increasing the current $60-million funding envelope for applied research by a modest $27-million would sustain the momentum and capacity that has been created over the past decade and satisfy at least a portion of the demand that exists among small and medium-sized enterprises and community organizations engaged in social innovation.

Investing in college infrastructure is therefore one of the best ways to stimulate the economy while supporting innovation. It helps Canadians acquire the skills they need to take on new challenges and lead innovative projects that will benefit their communities, but also makes colleges and institutes better partners for local businesses.

APPLIED RESEARCH AT COLLEGES AND INSTITUTES 2014-2015



Colleges and institutes provide research expertise in 1,450 specific areas of research, such as natural resources, energy, environment, health, information and communications technologies, manufacturing and social innovation.

FROM CICan 1

Applied research: Giving industry confidence in graduates' skills

The state-of-the-art equipment represents a substantial investment in a technology that Dr. Gerritsen believes will gain increasing relevance in the future and thus contributes to the college's mandate to "produce future-ready students."

Students not only get a chance to implement cutting-edge additive manufacturing technologies – they're also familiar with traditional methods and can determine which are more applicable. Ms. Childs, for example, has gained a lot of experience towards her goal of a career in the aerospace industry. It started with her Grade 12 high school project, when she built a wind tunnel for studying dynamic lift theory. When she entered college, she financed her tuition payments by working as a welder. Now, she gains hands-on experience in the lab as a co-op student. "It gives me the chance to work with aerospace parts and understand their unique properties," she says.

> "Seeing a project go from concept to working part, that's what I love."
>
> **Stephanie Childs**
> is a mechanical engineering co-op student at Mohawk College of Applied Arts and Technology

Ms. Amyot believes that graduates who are capable of using state-of-the-art equipment and are familiar with industry processes have a natural advantage when they seek employment. It is not uncommon for industry partners to recruit the students they've worked with – there is confidence that the graduates can add value to the company from day one.

In addition to hands-on experience, students also benefit from a creative and entrepreneurial approach to problem-solving, which are essential for gaining an edge in today's market place and can give them valuable tools if they want to start a company, says Ms. Amyot. And due to their close connections to industry and communities, colleges and institutes have developed a feedback loop that allows them – and their students – to succeed.

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GLOBAL CONNECTIONS

Canadian education model provides answers to employment challenges across the globe

In a more and more globalized world, preparing graduates for a career narrowly focused on their own communities is no longer enough, says Paul Brennan, vice president, international partnerships for Colleges and Institutes Canada (CICan). "We have to realize that many of our students' careers will have an international component."

Graduates may find employment with a Canadian company that requires them to travel and work with international partners. They may join multinational corporations with offices across the world, or they may start an enterprise with the potential to grow international sales, explains Mr. Brennan.

In addition to expanding career opportunities, an international perspective is also needed for addressing global challenges, such as climate change, global warming, pandemics or humanitarian crises. "We need to educate global professionals, global entrepreneurs and global citizens, who have the confidence and skills to build global networks and work at solving global issues," he says.

The Canadian college system – which is regarded as one of the best in the world – could also provide a source of hope for youth across the globe, according to Mr. Brennan.

"In many countries, the prospects for employment have changed and education systems need to catch up," he explains. "Through our close links with industry and communities, we investigate the skills that are needed and design our curriculum accordingly. This response to the market gives us a distinct strength."

There is increasing demand for this kind of learning and Mr. Brennan believes that helping international partners implement training systems based on the Canadian college model can be a valuable contribution to supporting global economic growth.

Durham College, for example, is providing students in economically developing countries with the opportunity to get the kind of education and training they need to secure employment and contribute to the growth and prosperity of their nation. Durham, a leader in curriculum development, currently has partnerships in place with post-secondary institutions in Guyana, Peru, Barbados and Vietnam in such areas as automotive, culinary arts and gastronomy, leadership training, and food and pharmaceuticals.

According to Dr. Elaine Popp, vice-president academic at Durham, the programs are designed to ensure curricula developed and delivered in these countries better reflects local job market needs. "We want to ensure that when students graduate they are employable," she says. And they are, thanks to the holistic approach Durham takes offering high-quality, collaborative, results-drive training delivered by subject-matter experts who are also training professionals. Following implementation, feedback from program partners allows the college to fine tune its programs and develop best practices for use in current and future ventures.

A good example of the process at work is demonstrated by the college's partnership with Centro Experimental de Formación Profesional (CEFOP), a technical and vocational college in Trujillo, Peru. Tourism is booming in Peru, and Durham is helping CEFOP meet industry demand by implementing innovative and creative culinary and teaching methods using new and existing technologies.

Similarly in Vietnam, Durham has a partnership with the Hau Giang Community College to support the development of an entirely new food and pharmaceutical program, in response to current and future labour market trends. In all of its projects, Durham College leverages the success of its evidence-based practices to enhance skills development among students, faculty, staff and leaders. In addition to meeting industry demand, the programs are designed to increase student recruitment and retention, improve access to marginalized groups, and foster entrepreneurial behaviour in the post-secondary environment.

According to Katie Boone, manager, international projects at Durham, the college intends to continue exploring new partnerships in co-operation with other colleges and institutions at home and abroad. "These programs not only allow us to internationalize our experience and enhance our own best practices, but they also help attract international students to Durham," she says, adding that there is enormous potential for both Durham College and its partners from the global south.

Mr. Brennan adds that the Asian Development Bank has identified the Canadian and German college systems as having the most relevance for tackling the challenges in the Asia Pacific region.

By providing training and curriculum development, Durham College is helping students in economically developing countries to get the training they need to secure employment. SUPPLIED

"This is a huge market for Canadian expertise. For example, we help the polytechnics of Indonesia learn to work closely with industry and do applied research," he says. "We also work with China to implement a more student-focused pedagogy – less rote memorization and more innovation – and partner with smaller businesses rather than just big corporations."

In addition to forging partnerships abroad, many Canadian colleges and institutes are focused on internationalization. While they have been successful in bringing in a greater number of international students, Mr. Brennan sees room for improvement when it comes to the percentage of Canadian students gaining international experience as part of their studies.

Industry partners in many sectors have made it clear that they'd consider graduates with international experience first over those with equal competencies. "They know you learn a lot about yourself in a different country. And you gain many of the soft skills that employers want, such as confidence, the ability of working in teams and creative problem-solving."

Mr. Brennan adds, "It's essential for the next generation to appreciate cultural differences but also realize our common humanity."

COLLEGES & INSTITUTES

PATHWAYS

Fine-tuning education options to job market and student needs

The mobile greenhouse program – which allows Keyano College students to share their passion about science with pupils at local schools – is seen as a symbol of the dedication of colleges and institutes to their communities and industry partners. At SAIT, industry partners take an active role in shaping programs to ensure graduates are career-ready. SUPPLIED

When David Ross came out of high school over three decades ago, he and his classmates would either go to university or opt for vocational training. "You chose one or the other – there was virtually no crossover," recalls the president and CEO of SAIT Polytechnic in Calgary, Alberta. "We realize now that those different educational paths provide people with different skill sets. And by combining them, we can create a more robust opportunity that allows students to take advantage of the full spectrum of educational experiences."

There has been a concerted effort to develop a more seamless post-secondary education system across the country. For the past five years, Dr. Ross led the Colleges and Institutes Canada (CICan) committee dedicated to developing linkages and mechanisms for increased student mobility.

A reason why expanded education pathways are important originates in today's labour market, says Dr. Ross. "You used to be able to graduate with a degree and be set for your career. Today, because of the rate of change we experience, people need to regularly update their skills to remain current."

> "Brain drain is a reality that affects many rural areas across Canada, but here, we are dealing with a technological hub."
>
> **Guy Harmer**
> is Keyano College's dean of the School of Arts, Science, Business and Education

Because people are experiencing the need for education throughout their career, there is a greater percentage of students who are older, with more responsibilities such as a family or a mortgage. "We have to remove the barriers that can prevent students from reaching their goals," Dr. Ross explains. "We have to ensure they have access to the education they need – this could mean offering more distance learning or weekend courses, for example."

Another potential barrier is the need to relocate for post-secondary education. Keyano College in Fort McMurray, Alberta, has addressed the issue by offering four collaborative degrees, which allow students to start and finish their post-secondary education without leaving the region.

For Guy Harmer, Keyano's dean of the School of Arts, Science, Business and Education, the college's mobile greenhouse is a powerful symbol. When it stops at local rural schools, children delight in watching new shoots come up and seedlings mature. By learning science from Keyano's education and science students, they may be inspired to go and plant their own seeds.

"In the greenhouse – which we bring to our communities – we grow and nurture seedlings," he explains. "That mirrors our efforts in supporting our students en route to their careers."

It's important that a fair percentage of graduates pursue their career locally, Mr. Harmer believes. "While much of the region is rural, its proximity to the oil sands – and the many connected services – drives the need for a sophisticated talent pool," he says. "Brain drain is a reality that affects many rural areas across Canada, but here, we are dealing with a technological hub."

The collaborative degrees – partnerships with the University of Alberta, Mount Royal University and NAIT – contribute to the development of much-needed oils sands personnel, teachers, nurses and business professionals, adds Mr. Harmer.

And industry and community partners appreciate the contribution. Support from the petroleum industry, for example, goes beyond funding high-tech equipment for training experts in the field – it also encompasses initiatives like the mobile greenhouse and financial assistance for students travelling to rural and remote areas for education practicums, says Mr. Harmer.

At Fort Chipewyan, which is located about 223 kilometres north of Fort McMurray, students spend five weeks working with the local school board. "It can only be accessed by plane or winter road and it's expensive to live there," says Mr. Harmer. "But it gives students a chance to see what their professional life in such a remote but naturally beautiful area could look like."

Dr. Ross has witnessed a substantial shift in the educational landscape, he says. Today, nearly half the students admitted to SAIT come from other post-secondary institutions – which simply wasn't the case 10 years ago – and half of that number continue their education elsewhere.

Many students see hands-on education as an advantage for getting career-ready. "On our side of the post-secondary equation, we work extremely close with industry," says Dr. Ross. "In any given year, SAIT will deal with 10,000 companies across all of our programming; you can imagine the strength that gives our students."

This connection also gives companies confidence in the students' skills, says Dr. Ross. "In a nutshell, employers say that when our graduates join them, they don't need further instruction. They add value to their organization right away."

And industry provides input for program development, explains Dr. Ross. "Since technology and processes are changing very quickly, it is important to SAIT that we never lose sight of the importance of continually updating our programs."

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PATHWAYS

FROM CICan 1

Experiences: Smooth transitions from one institution to another

"We get students where they want to go, whether it's to further studies, careers, or career updates and transitions," says Dr. Trotter.

With a number of partnership agreements in place, students can do the coursework of their first two years of post-secondary education at the college and then transfer to a university, for example, to continue seamlessly toward a degree.

Dr. Trotter believes that credential recognition is an important aspect for facilitating smooth transitions from one institution to another. "By recognizing the learning that students have already done, we reduce redundancies and barriers," he adds.

The emphasis on removing barriers is something colleges, institutes and universities have in common, says Alan Harrison, provost and vice-principal (Academic) Queens University in Kingston, Ontario, which has partnership agreements with Langara, several Ontario colleges and international universities.

"Our purpose is to meet students' needs," he says. That includes helping students complete the requirements within the best possible timeframe. It also means enabling them to clearly articulate and communicate the skills and experiences they have already acquired, explains Dr. Harrison, who adds that this is also of great use to potential employers.

There is an increased focus on experiential learning, and Dr. Harrison has received the feedback that "students find such experiences extremely effective." As post-secondary institutions adapt and expand the opportunities on offer, they help students get ready for employment or further education, says Dr. Harrison. "That's how we eliminate any notion of the skills gap."

Dr. Trotter sees an indication of how Langara students value their education in an annual audit performed by the province of B.C., where the college scores 95 per cent in both students' and graduates' satisfaction.

He believes there are several aspects of the college's education that make it a good fit as a first step for post-secondary learning. "When students come to us, they may need a little bit more time developing their confidence and building their skill sets," he says. "That's what we do well since we have small class sizes and our students have direct contact with our faculty."

And especially over the first few months after starting college, Dr. Trotter has observed a noticeable growth in the students' abilities to seek out and access support services, whether their needs are financial, emotional or academic.

For Dr. Trotter, pathways are not just about sending students out, but also inviting them in. Langara has partnership agreements with a number of school boards to reach high school students across the country and present them with opportunities and options.

Dr. Harrison believes greater transferability increases the pool of incoming students, thereby creating opportunities to make new friends and exchange ideas – something that all partners can benefit from.

Small class sizes and direct contact with faculty help students at Langara College prepare for next steps of education or career. LANGARA COLLEGE/JENNIFER OEHLER

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>
> **Lane Trotter**
> is president of Langara College

STUDENT MOBILITY

College, institute and university collaboration is a growing trend in Canada, and a 2014 OECD report states that the high degree of mobility and pathways between post-secondary routes is one of Canada's strengths.

Launched in January 2016 by Colleges and Institutes Canada (CICan) and Universities Canada, a new web resource shows collaborations between colleges, institutes and universities that offer students a variety of pathways for pursuing their education and career goals. Combined, Universities Canada and CICan represent over 230 post-secondary institutions with more than three million students.

More student choice in post-secondary education is linked to greater student satisfaction and improved career preparation. Among the options available to today's students are joint and collaborative academic programs and research projects, block credit transfers, shared campus space and flexible learning plans.

Transferability efforts aim to reduce costs for students, institutions and government, and bring individuals to the employment markets faster by recognizing learning that is already completed.

From coast to coast, innovative partnerships – in student programs, collaborative spaces and research initiatives – demonstrate the continued efforts of post-secondary institutions to improving learning mobility and outcomes.

For more information, please see www.collegesinstitutes.ca/policyfocus/transferability/colleges-and-universities-partners-in-education.

COLLEGES & INSTITUTES

HEALTH

Breaking down silos between specialties and hands-on training enable better health care delivery

Students at Humber College and BCIT are immersed in collaborative and hands-on learning environments. HIVES, Humber's interactive learning spaces create environments that mirror paramedics, nurses, pharmacy techs and others working together (left). BCIT students (right) practise with life-size robots, which simulate symptoms such as plummeting blood pressure, cardiac arrest or uncontrolled bleeding. SUPPLIED

Health-care policy debates often begin with the assumption that meeting the challenge of unsustainable health-care spending means accepting less or lower quality patient care. But innovation at two Canadian post-secondary institutions – Humber College and British Columbia Institute of Technology (BCIT) – is upending that idea.

In fact, improving patient safety is one of the most effective ways to reduce health-care costs, says Jason Powell, the dean of the School of Health Sciences at Humber College Institute of Technology and Advanced Learning in Toronto. "Adverse events and near misses can be catastrophic for patients, and they also cost the system a significant amount of money,"

He uses a far-too-common story to illustrate: because of communication gaps between a care team that includes a pharmacist, surgeon and nursing team, Mrs. Smith is given a medication that causes an adverse reaction. Her expected three- or four-day hospitalization for a hip replacement turns into 28 days in hospital.

"When team members collaborate effectively, patients like Mrs. Smith get optimal care," says Mr. Powell. "They're home in three or four days and their bed is free. Costs and wait list times go down."

A purposeful approach to collaborative practice education is an essential part of the solution, he says. In the traditional model, health-care professionals trained in isolated silos are expected to instantly understand the roles of other specialities the moment they begin their careers. "Our aim here is to produce a workforce that's ready to participate in collaborative, high-quality care."

> "Our aim here is to produce a workforce that's ready to participate in collaborative, high-quality care."
>
> **Jason Powell**
> is the dean of the School of Health Sciences at Humber College Institute of Technology and Advanced Learning

All Humber College School of Health Sciences, programs are designed to break down silos between specialties, and continuing education courses are available to equip health professionals already at work in their fields to collaborate more effectively with other specialists.

HIVES, Humber College's interactive learning spaces, allows faculty to replicate the environments students are going to work in. A student paramedic, nurse, pharmacy tech, occupational therapist and emergency tele-communicator may be assigned to work together on a real-life case, Mr. Powell explains. "When students learn from, with and about each other; when they're comfortable with and knowledgeable about other professions and know how to communicate with them effectively, the potential effect on patient safety is revolutionary."

At BCIT, 22 computer-controlled robots allow critical care nursing students to learn how to save lives, often by making mistakes. As things go wrong, these sophisticated life-size robots may experience plummeting blood pressure, cardiac arrest or uncontrolled bleeding – and along the way, they may even swear at the nursing students trying to help them.

Rob Kruger, a member of BCIT's Critical Care Nursing, Simulation and Innovation faculty, is the health-technology expert who programs the robots as part of his mission to integrate advanced technology into the institute's health-care training. Working with the robots helps students bring their learning in the classroom into clinical practice, he says. "We use them for clinical decision-making and team practice, which translates to better health care delivery."

BCIT's emergency nursing department is currently beta-testing a virtual baby, and critical care nursing students – who would formerly have used textbooks that, when stacked, reached 42 inches high – now receive their entire curriculum on mini iPads. "With some help from Apple Canada, we created interactive books, with videos of actual clinical practice," says Mr. Kruger.

Preliminary data shows that students immersed in this technology-driven experiential learning are much more prepared for clinical practise, he reports.

BCIT's technology-driven training prepares students to access current guidelines and make the best decisions possible for patients, whether they're in a hospital, a clinic or a home setting, says Bernice Budz, the dean of BCIT's School of Health Sciences. "They are able to learn and practise in a safe setting, and when they go into clinical practice they're already functioning at a high level, providing care with the least likelihood of creating error."

A new BCIT health and life sciences building is in the planning stages, and the focus will be partnering with local health authorities to expand simulation opportunities, says Ms. Budz.

"We're looking at research on how the brain learns and trying to really push the envelope, to design safe learning environments that encourage students to retain more information, which will continue to lead to better care," says Mr. Kruger.

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SOCIAL INNOVATION

Funding boosts capacity for collaborative social innovation research

Communities across the country face a number of social challenges – from the integration and safety of vulnerable community members, to local economic development and food security – and a new initiative will leverage the talent, facilities and capabilities of Canada's colleges and institutes for finding innovative solutions.

The Community and College Social Innovation Fund (CCSIF) supports social innovation projects undertaken by colleges and institutes in collaboration with community organizations, says Ted Hewitt, president of the Social Sciences and Humanities Research Council (SSHRC), the federal research funding agency that has pledged support for this initiative with a total of $15-million over three years.

> "It is hoped that projects funded under CCSIF will yield innovative solutions of practical relevance to community organizations to help solve complex social issues."
>
> **Ted Hewitt**
> is president of the Social Sciences and Humanities Research Council

Twenty-seven projects in 20 colleges were recently selected to receive nearly $6-million, says Denise Amyot, president and CEO of Colleges and Institutes Canada (CICan). "Social innovation is certainly a priority for our colleges and institutes since they are already working so closely with their communities," she says. "With their strong community connections, colleges are uniquely positioned to help address a range of social issues in areas such as education, integration of vulnerable populations and community development."

Colleges and institutes already have a good track record for this kind of work, according to Dr. Hewitt. In 2011, the SSHRC commissioned a study on the state and potential of social sciences and humanities research in the Canadian college system. The study confirmed that colleges' capacity is significant and growing, especially in areas related to social innovation.

"Canada's colleges and polytechnics are well equipped to contribute to social innovation initiatives. By tapping into the knowledge, experience, facilities and community connections available in their departments and programs, they will be able to develop evidence-based strategies and solutions to issues faced by the community," says Dr. Hewitt.

The initiative aims to strengthen the ties between colleges and institutes and their communities – it also boosts the involvement of youth in tackling today's challenges. "The funding will foster colleges' research capacity in the social sciences and humanities, and will offer unique training opportunities for college students, such as furthering critical thinking skills and learning how to work with diverse communities," Dr. Hewitt adds.

The projects are undertaken with a wide range of partners, including community organizations related to mental health, immigrant and refugee integration, women and aboriginal women, victim justice and food security, as well as municipalities, school boards, universities and health-care centres.

Every CCSIF project reflects a specific need of local communities, says Ms. Amyot. And in helping to strengthen community cohesion, students also gain valuable knowledge, skills and experience that are applicable to real-world situations.

As part of the initiative, students will be engaged in projects that will help build connected communities and improve support to reduce loneliness and social isolation in immigrants 65 years and older. They will design online tools for engagement and holistic crisis planning with diverse youth groups, foster regional food systems, and focus on resilience and victims of violence. They will also support the development and evaluation of the Post-Secondary Students with Disabilities Network (PSDNet).

While existing partnerships will be strengthened, Dr. Hewitt also envisions new partnerships to emerge across sectors. "This will open up possibilities for collaboration – between and among colleges, universities, the public and private sectors – resulting in effective, fairer and more durable solutions to complex social issues," he says.

"It is hoped that projects funded under CCSIF will yield innovative solutions of practical relevance to community organizations to help solve complex social issues."

As part of the Community and College Social Innovation Fund initiative, students at Red Deer College look forward to collaborating with community partners to conduct a three-year research project focused on assisting immigrant women in central Alberta. RED DEER COLLEGE

SOCIAL INNOVATION

Friendly housemates project a response to independent living challenges

Individuals with an intellectual disability and their families look to Community Living Toronto for a range of services and supports, including residential options. However, with demand greatly exceeding supply, the wait time for suitable housing is increasing.

"There's a significant shortage of appropriate residential supports, and waiting is very difficult for many individuals and families," says Matt Poirier, a community support coordinator with the organization. "We also need to look at alternative housing models to offer more choice. Younger individuals, for example, often don't want to live in a group home and many people we support, want and can live more independently."

The search for new models of supportive living is getting a boost from an innovative research partnership between Community Living Toronto and Toronto's Centennial College. The Friendly Housemates project, funded by the Social Sciences and Humanities Research Council of Canada, matches first-year students in Centennial's health and human services programs as live-in roommates in the homes of one or two individuals with an intellectual disability.

Students from other colleges and universities will also be sought for the project, which aims to arrange 10 housemate matches for one academic year to two full years.

Community Living Toronto is working with individuals and families to find those who would most benefit. "Prime candidates are individuals exploring semi-independent living or who are already set up in the community, and who want to expand their friendships and social networks," says Mr. Poirier. The agency, individuals and families will interview the accepted students to ensure the right fit.

"The parents of one individual said they had no idea what that person was capable of – until they experienced the friendship and social inclusion that came from the housemate match."

Marilyn Herie
is the dean of Learning and Teaching at Centennial College

The research will evaluate the experiences and outcomes from the living arrangement. "We'll interview the students, individuals and families, as well as the community workers who will do weekly check-ins and coach and mentor the students," says Marilyn Herie, dean of learning and teaching at Centennial and the lead researcher. "We'll document the lessons learned from this model of housing – how did the housemates grow and develop; what challenges did they face?"

A small pilot project at Centennial demonstrated the strong potential for the model, says Dr. Herie. "The parents of one individual said they had no idea what that person was capable of – until they experienced the friendship and social inclusion that came from the housemate match."

The students benefit from the personal and professional growth that comes from experiential learning and also receive significant living-expenses support.

On a broader scale, the partners anticipate this research will create a supportive living model that can expand in Toronto and to other communities and can also benefit other vulnerable or marginalized populations.

In collaboration with Centennial College, Matt Poirier at Community Living Toronto works with Lindsay, Sophia, Dylan and Ali (L-R) to explore semi-independent living options. SUPPLIED

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SOCIAL INNOVATION

Social innovation initiatives provide answers to community challenges

It is a model that is providing real-life solutions – colleges and institutes partnering with community organizations on innovative projects to address social, cultural and other challenges in their communities.

Ontario's Georgian College considers this social-change role central to its mission and is recognized as a leader for its Centre for Social Entrepreneurship, based at the Orillia campus. Billed as a "change-maker hub," the centre oversees projects, workshops and research studies in the communities of all seven campuses.

"As a community college, it is very important that we are responding to what the community needs," says Suzanne Addison-Toor, the centre's director. "Our community partners often come to us and say, 'Here is a gap we would like to bridge or here is an idea with exciting potential.' Students and faculty in a range of disciplines work with those partners to employ social entrepreneurship to find creative solutions."

One recent project involved the Orillia Detachment of the Ontario Provincial Police and students in community and justice and other programs for a graffiti clean-up and awareness campaign. The students mapped and catalogued graffiti locations, says Ms. Addison-Toor, and "chose where to remove the graffiti to make cleaner, safer and respectful spaces, while leaving other installations as public art."

In the second phase, officers are working with students at the college and Orillia high schools around the art piece of the graffiti work, with plans to mount a graffiti display on canvas at the end of the term.

"We believe that supporting our students to engage in community service is critical," says Mary O'Farrell-Bower, dean of Georgian. "These experiential learning opportunities differentiate our students and build skills and mindsets that will serve them well in their future careers and lives. At the same time, we're strengthening the capacity and sustainability of community organizations and creating positive social outcomes."

In another social-change initiative, researchers at Sheridan College in Oakville, Ontario, have joined forces with community service providers to develop innovative approaches to support immigrants, 65 and older, who experience social isolation and/or loneliness.

The Social Sciences and Humanities Research Council of Canada (SSHRC) is funding the three-year project by the college's Centre for Elder Research, along with Community Development Halton, Dixie-Bloor Neighbourhood Centre, the Yee Hong Centre for Geriatric Care, and India Rainbow Community Services of Peel.

Canada's colleges, such as Georgian College and Sheridan College, are using innovating means for addressing social challenges. Clockwise from top left: Former private investigator Raphael Chacon recently completed an awareness program for the food bank in Orillia as part of Georgian's social service worker program. Social service worker student Kavienne Delahaye-Juhmi focused on teaching grade nine students about healthy relationships. Sheridan students evaluate the risk of isolation for seniors. Lynda Kay, a student participating in Georgian's Community Projects Initiative, worked to encourage moms and tots to visit the local public library. GEORGIAN COLLEGE / DOUG CRAWFORD; BOTTOM LEFT, SUPPLIED

"These experiential learning opportunities differentiate our students and build skills and mindsets that will serve them well in their future careers and lives."

Mary O'Farrell-Bower
is the dean of Georgian College

"Our aging population and the 'longevity revolution' create new societal challenges and opportunities," says centre director Pat Spadafora. "It's important to find ways for older adults to remain active and engaged. It's not enough to add years to life – it's important to add meaning to those years."

Research shows that older people face greater risks of living in isolation and feeling lonely – and evidence suggests that older immigrants may be particularly vulnerable.

Gurpreet Malhotra, executive director of India Rainbow Community Services of Peel, sees that vulnerability among older South Asian immigrants. "Language can be a barrier and so is the fact that life in a larger Canadian city is so different. Many seniors came from small towns or villages where their lives more naturally included social connections."

Together, the Sheridan researchers and community organizations will reach out to South Asian, Filipino, Polish and Chinese immigrants in the regions of Halton and Peel. Eight Sheridan students from social service programs have been recruited as research assistants for the initial phase of data collection.

The research will map the supports that agencies and faith communities offer to older immigrants to assess gaps and develop tools to more effectively identify seniors at risk of isolation and loneliness.

"Our goal is to create culturally competent strategies to address these issues, and work with our partners to design and test innovative programs, including technology supports, to improve seniors' quality of life," says Ms. Spadafora.

"Individuals and society will benefit from innovation in this area," adds Mr. Malhotra. "Seniors who are more connected to their communities also have better overall health and need less medical care."

COLLEGES & INSTITUTES

NATURAL RESOURCES & ENERGY

Growing numbers of graduates find employment in renewable energy sector

Promoting alternative energy in the heart of Alberta's oil patch may seem incongruous, but the Edmonton-based Northern Alberta Institute of Technology (NAIT) believes it's essential to prepare students for careers in this field.

Jim Sandercock, chair of NAIT's Alternative Energy Technology Program, says consumer demand for alternative energy sources is growing rapidly.

"Our two-year diploma program prepares students for a career in what has become a very diverse field," he says. "In partnership with the province of Alberta, NAIT recognized the opportunity to be out in front of the emerging alternative energy sector by preparing graduates to meet future needs rather than responding after the fact."

There's a similar view at British Columbia's Northern Lights College. Its Dawson Creek campus is training technicians to maintain wind turbines, a growing source of clean, alternative energy in a region rich in fossil fuel resources.

Mark Heartt, the college's dean of Trades, Apprenticeships and Technology, says the 40-week program was introduced in 2010 just as the wind energy sector was starting to emerge in B.C.'s north. It has space for nine or 10 full-time students a year.

"We realized that there would be a demand for technicians to maintain the turbines that were being constructed in our own backyard, and there were very few training programs at the time," he says.

In fact, Northern Lights is still the only college in B.C. offering a wind turbine maintenance technician training program and one of only a handful across Canada.

According to the Canadian Wind Energy Association, there are currently five wind farms in B.C. with a total of 217 turbines that generate close to 500 MW of power, which equals two per cent of the province's domestic electricity demand.

Mr. Heartt believes those numbers will grow as B.C. and the rest of Canada move away from fossil fuels and embrace alternative energy sources, and that means the demand for maintenance technicians will also increase.

The NAIT program boasts a 100 per cent employment rate for graduates, which is seen as evidence of the strong demand for the knowledge and skills needed to support and promote the growing sustainable energy industry throughout Western Canada.

Matt Simard is a graduate of the program, having earlier trained at NAIT as an electrician. He now operates his own business in Edmonton, SolBird Energy, which specializes in renewable energy technology and the promotion of energy efficiency.

A former oil field worker, Mr. Simard says his true passions were always renewable energy and starting his own company.

"When the time came, I looked around and realized that there were probably 1,000 electrical companies in Edmonton alone," he says. "If I wanted to succeed, I would need to differentiate myself, and NAIT's Alternative Energy Technology Program seemed the perfect way to do just that."

He serves mainly commercial and larger residential customers who want to lower their power bills by changing to energy-efficient systems.

"Not everyone can afford renewable energy technology right off the bat, but just using energy more efficiently is usually the first and least expensive step to cutting costs," adds Mr. Simard.

Demand for places in the program is high and growing, says Dr. Sandercock. There were 92 applicants in February this year for the next intake compared to 43 for the first intake in 2011.

While the program does have some international students and a few from outside the greater Edmonton area, the majority are local and remain working in the region after graduation, he adds.

Mr. Heartt says the Northern Lights College program also attracts students from across Canada, and while many graduates stay in the region to serve the local wind energy sector, they are eligible to write the BZEE Certification Examination to start the process of obtaining international certification, which would qualify them to work on wind turbines anywhere in the world.

Students construct a solar rack designed by participants of NAIT's Alternative Energy Technology Program. At Northern Lights College, students go to great heights for their training in maintaining wind turbines. SUPPLIED

> "Our two-year diploma program prepares students for a career in what has become a very diverse field."
>
> **Jim Sandercock**
> is chair of NAIT's Alternative Energy Technology Program

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NATURAL RESOURCES & ENERGY

Meeting the needs of an emerging bio-industrial sector

Ontario's Sarnia Lambton region is rooted firmly in the petrochemical industry. Over many decades, the sector has provided tens of thousands of jobs and contributed to the development of one of the province's most robust local economies.

Lambton College has played its part too. For almost 50 years, it has been an integral partner with the energy sector as the primary supplier of talent. Now, as the sector evolves, the college is adapting as well to provide training for the specialists that will be needed as new industry emerges.

For example, the college's Centre of Excellence in Energy & Bio-Industrial Technologies was established last year to help meet the needs of the bio-industrial sector taking hold in the region.

Judith Morris, president and CEO of Lambton College, says that as the only post-secondary institution in the area, the college has a responsibility to the community, not only to educate its students, but also to provide a focal point for economic development.

"We must ensure that students are not only well prepared to work in the petrochemical sector, but in cutting-edge bio-industrial technology as well," she says.

But that's not all Lambton College has to offer, adds Ms. Morris. The centre of excellence is also strongly focused on applied research carried out in collaboration with industry partners.

"We provide opportunities to companies to develop technologies and processes that prepare them for a bio-industrial focus," she says. "The combination of a trained workforce, solid programming and applied research is a very effective tool in driving the economy of Sarnia Lambton."

Mehdi Sheikhzadeh is dean of applied research at Lambton College. He explains that bio-industrial technology is essentially the conversion of an agricultural feedstock into energy and value-added chemicals.

Lambton College's Centre of Excellence in Energy & Bio-Industrial Technologies provides a state-of-the-practice learning environment, where students design, install, configure, operate and troubleshoot energy and bio-industrial processes. SUPPLIED

"In Sarnia, we are currently producing high-value chemicals from petroleum and natural gas, but the aim is to replace those feedstocks with green resources, such as corn, to produce similar high-value chemicals," he says.

By partnering with industry in applied research, the college is playing a key role in helping advance the bio-industrial technologies that will move the sector forward.

"The goal of applied research is commercialization," says Dr. Sheikhzadeh. "In many cases, the initial idea comes from industry itself. We help evaluate and test it, build a prototype and pilot plant if necessary and support commercialization so that there is a positive economic impact."

Dr. Sheikhzadeh points out that Lambton College has a long and successful history of applied research that the new centre of excellence is building on. Last year, it was ranked nth on the list of the top 50 research colleges in Canada.

The centre has been well received by industry, not only in the region, but across the country, says Ms. Morris.

"More and more we are being seen as the go-to place for bio-industrial technology," she adds.

For students, the centre of excellence not only teaches them the skills they will need to thrive in the emerging economy of the region, but also opens doors to careers through its partnerships with industry.

"Our students are helping solve problems at a very high level, and by working with industry partners, they establish links that often result in well-paid, high-quality jobs," she adds.

FROM CICan 1

Environment: Connecting industries with effective resource management

"Done correctly, forestry, mining, hunting, fishing and trapping can all be done sustainably," says Dr. Greenwood. "Our faculty and students are uniquely positioned to connect these industries with new, more effective resource management techniques."

Time spent at the facility helps students enter the workplace ready to share the potential of new technologies their employers may not even be aware of, he notes. "It's an opportunity to shape our students to be good conservationists, and in doing so, to help build more sustainable businesses and contribute to our provincial and national economies."

Students at Hannin Creek. SUPPLIED

Laurel Waldner, the education program coordinator of the Saskatchewan Wildlife Federation Prince Albert campus, is a graduate of Sask Polytech's integrated natural resource management program. Her passion for the outdoors inspired her to enroll in the program, a decision that led to her "dream job" as the manager of the Hannin Creek facility.

The federation's one-of-a-kind collaborative partnership with Sask Polytech also provides funding that makes it possible to offer a wide range of programs for the public and other organizations, such as canoeing, shelter building and survival. Forest fire fighters and other groups rent the facility for training, and Ms. Waldner facilitates women's outdoor weekends and youth conservation camps.

These opportunities to learn more about the natural world may be creating a whole new generation of conservationists. The children and youth who participate in the federation's Hannin Creek programs "are on cloud nine," says Ms. Waldner. "One of the things required by my program was learning to identify 100 birds just by hearing them – being able to pass that kind of knowledge on to the kids is my biggest reward for sure."

INFORMATION & COMMUNICATIONS TECHNOLOGIES

Mining big data for business insights

Seneca professor Robert Carroll addresses students from the Strategic Marketing Analytics program at Seneca's Markham Campus. SENECA COLLEGE

Every day, individuals and organizations are exposed to a deluge of digital information. This "big data" is a combination of sophisticated web analytics, social media tracking, sales, customer and marketing information, and it only becomes valuable once you can understand and make use of it, says Robert Carroll, a professor in the School of Marketing at Seneca College.

"It's about gathering the right data, using the right tools, and then transforming it into insight that allows management to take action," says Mr. Carroll.

In order to do that you need individuals who can analyze and interpret that data, which is why Seneca is now offering three Strategic Marketing Analytics graduate certificates designed to produce data-literate graduates proficient in analyzing information across a wide range of specializations.

> "Industry needs graduates who are analytically astute obviously. But they also need new hires to be as comfortable with words as they are with numbers."
>
> **Robert Carroll**
> is a professor in the School of Marketing at Seneca College

These eight-month certificates, which include co-op placements, were developed in co-operation with industry partners such as IBM, a cognitive solutions and cloud platform company that "knows data is only noise unless you can analyze it, differentiate it and use it in some meaningful way," says Colette Lacroix, IBM's industry executive for higher education in Canada.

"Companies today are going through a transformation that is being driven by data and captured in code," she explains, describing it as one of the last frontiers of natural resources. It can be used in a multitude of ways, from enhancing sales and marketing programs, to collecting information from premature babies that then allows doctors to obtain predictive analyses of infections as much as 24 hours earlier than was previously possible.

Research indicates there is critical shortage of individuals capable of analyzing big data.

"As many as 40 per cent of organizations report a shortage in the ability to manage information, and the demand for data-literate individuals is only expected to grow," Ms. Lacroix says.

Clearly communicating the insights derived from big data is even more important than the analysis itself, adds Mr. Carroll. In fact, Seneca's new certificates include an entire course called Communicating Complex Material.

"Industry needs graduates who are analytically astute obviously," he says. "But they also need new hires to be as comfortable with words as they are with numbers. These employees are hard to fine, and that's what makes them valuable."

That would include people like Seneca graduate Stephen Shnier, now working as a data specialist at Nielsen Media.

"I look at data and make a story of it," he says. "There are all kinds of numbers generated by advertising, sales, viewership and the like, and the client wants to know how to use those numbers; I help them understand how they can."

DEVELOPMENT

Instilling an entrepreneurial mindset

Teaching students to focus on problems instead of solutions hardly seems a way to inspire them to succeed, but Mark Hoddenbagh insists it's a fundamental first step to becoming good entrepreneurs.

"What I find is that most so-called entrepreneurs love their solutions rather than their problems," says Dr. Hoddenbagh, one of the leads for entrepreneurship at Algonquin College in Ottawa. "But you can't love the solution until you love the problem first."

True entrepreneurs are creative people who drill down to determine the true nature of a business problem, says Dr. Hoddenbagh, executive director, Partnerships and Applied Research, who works to instill "the entrepreneurial mindset" in youth taking their first steps in business.

Young people are often not the most prepared to start new companies and ventures, he says. "If you look at the stats, within five years, nine of 10 youth-led companies will not be operational. The most successful entrepreneurs tend to be those in the 40 to 50 age bracket. Fortunately, connecting with a college can help improve the success of youth-led enterprises."

Algonquin addressed that issue last summer with its SUMMIT initiative, a nine-week intensive training program that trains youth and matches them with older mentors, faculty and staff to identify and tackle problems they face in starting a business.

It worked for Kirk Davies, 26, who says his fledgling business, Coach Hub, will connect athletes and their parents with private coaches when his newly developed software app goes live next June.

"The two problems that we are trying to solve are: one, that it is hard for parents to find and compare private coaches; and two, it's hard for coaches to find and manage clients," he says, adding SUMMIT taught him new skills like business planning and how to woo investors.

Giving the next generation of entrepreneurs the tools to succeed is a key objective at Algonquin College. Dr. Hoddenbagh says there are three parts to being a successful entrepreneur: business development, talent development, and product, process or service development.

"An entrepreneur is someone who knows they have limitations but is willing to go and either find out how to address those limitations themselves or find people who can help them," he says. "You might not have a strong finance background, but part of the plan is to get the right person to help you build that competency, or you might not be a computer programmer, so you find someone to write the code."

BY THE NUMBERS

31,346
students were engaged in applied research in 2014-15

84%
of colleges and institutes supported student entrepreneurship, and 10,101 students received support to pursue an entrepreneurial idea, an increase of 32% from 2013-14

Algonquin College student association president Sarah Grainger (left) and college president Cheryl Jensen cut the ribbon to officially open Ignite AC, the college's centre for innovation and entrepreneurship. SUPPLIED

INFORMATION & COMMUNICATIONS TECHNOLOGIES

Turning a gaming passion into a career

At 10 years old, Jamie Boylan was devouring his brother's X-Men comics and drawing some of the cartoon characters that have become legendary in the rapidly expanding $3-billion-a-year video game industry.

Twenty-two years later, he's still drawing. But now he does it for a five-figure salary as a senior designer at Big Blue Bubble, an animation studio based in London, Ontario, where he and 80 others make a good living by pursuing their passion for video games.

"Drawing was my one skill and I just didn't know how to live off of it," says Mr. Boylan. Today, the 32-year-old graduate of Fanshawe College's well-respected graphic arts and 3D animation courses is one of more than 20,000 people across Canada working for 472 studios and earning an annual average salary of $71,400. It's estimated that the industry, which has grown 31 per cent in two years, needs at least another 1,400 trained workers to meet its needs in the next year alone.

Last September, Fanshawe College in London, Ontario, introduced a three-year program that focuses on video game-building skills, says Robert Reichhardt, program co-ordinator for the college's Video Game Design and Development Program.

Video games are a "natural extension" of Fanshawe's curriculum development, says Mr. Reichhardt. It introduced post-graduate courses for 3D animation, a core video game production skill, in 2009. Following two years of consultation with video game companies and the provincial government, Fanshawe launched the new program dedicated to meeting the industry's specific needs for highly trained workers.

Initially, Fanshawe set a target to train 60 students, but overwhelming interest prompted the college to expand capacity to 160 students, according to Mr. Reichhardt. And they just keep coming – student applications for next year's entry have jumped 33 per cent.

The average applicant is a high school graduate who generally comes from southwestern Ontario, he says. Interest in video games and computer animation are indicators of success, with the program focusing on developing skills, such as modelling 3D shapes, including humans and inanimate objects, texturing, the process of adding colour and visual detail to a 3D object, and animation, which brings the form or object to life.

> "We live our life on the computer, so being computer literate, being able to adapt to new software programs and having that kind of mindset – all of those things are important."
>
> **Robert Reichhardt**
> is program co-ordinator for Fanshawe College's Video Game Design and Development Program

"We live our life on the computer, so being computer literate, being able to adapt to new software programs and having that kind of mindset – all of those things are important," he says.

But also fundamental is the timeless skill of drawing with pencil and paper. "Drawing is a big part of our program, and hand drawing is one of the most valuable skills," he says. "Our students actually spend time in a gallery with a live model, and they draw anatomy with traditional media.

"And the more you can get of that, the better."

Adding hands-on college education to her university degree enabled Renée Rodgers to pursue her dream of working in TV. SUPPLIED

Made for TV

Working in television has always been a dream for Renée Rodgers who recalls being completely absorbed by the medium as a child and never shying away from the camera. "At family events, when someone took out a video camera, I was a ham," she says.

As a first step towards turning her childhood ambition into a career, Ms. Rodgers, graduated with a degree in film and media from Queen's University in 2009. Yet when she moved back to Belleville, Ontario, she knew something was missing.

"Even though I had this degree, I knew I needed more experience to get a job in television," she says.

When she heard that a friend was gaining valuable industry experience through one of Loyalist College's Media, Arts and Design programs, Ms. Rodgers applied to the college as well.

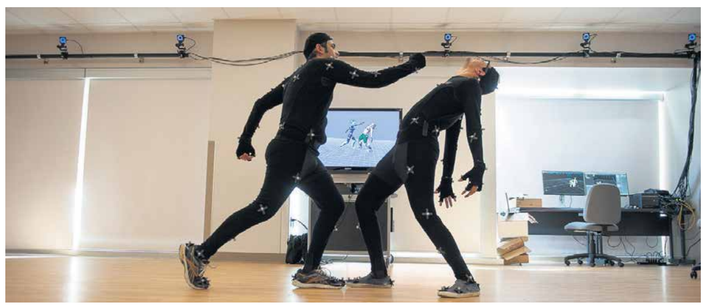
"Everything fell into place," she says. Ms. Rodgers explains that Loyalist College's Journalism – Online, Print and Broadcast program gives students the opportunity to experience every avenue of the industry and get a well-rounded set of skills in an all-platform newsroom in Loyalist's Digital Media Centre. With this background, journalism graduates are well positioned for finding work in the industry.

As a student, Ms. Rodgers wrote feature stories, delivered the weather on a green screen, and put together videos for QNet News, the program's student-produced online news service. She also worked as a news reporter at Quinte Broadcasting.

After completing a work placement at CHEX-TV in Peterborough and graduating from Loyalist in 2013, Ms. Rodgers was hired as a general reporter at CHEX, where she was "doing it all – video, interviews, script writing and editing.

"For television, you have to have a lot of technical knowledge," she says. "But you also need to know how to connect with people so that they're comfortable. [That's when] you're going to get better stories."

Having been at CHEX for nearly three years, Ms. Rodgers's position has changed. She now reports from the anchor desk and, when asked, delivers the weather. More importantly, she's right where she wants to be – in front of the camera.



Gaming rooms and motion-capture equipment allow students at Fanshawe College to gain the skills and experience to become successful game designers. TOP, AGATA LESNIK; BOTTOM, JOHN SING

INDIGENOUS EDUCATION

Indigenous Education Protocol a further step towards reconciliation

Colleges and institutes in Canada are playing a major role in the national reconciliation with indigenous peoples through an aboriginal protocol that addresses the needs of indigenous learners and promotes reciprocity with the wider community.

The Indigenous Education Protocol for Colleges and Institutes reinforces the report of the Truth and Reconciliation Commission (TRC), which emphasized the role of education in fostering reconciliation by enhancing curriculum, understanding and research.

"We're very much in line with the priorities of the commission," says Anna Toneguzzo, director of government relations and policy research for Colleges and Institutes Canada (CICan), which launched the protocol in December 2014. Its seven principles outline how members can demonstrate their support for aboriginal students, recognizing and reinforcing a commitment to indigenous education.

To date, 43 of 135 CICan members have signed the protocol, Ms. Toneguzzo says, while for others it "provides a roadmap," for example influencing their governance structures, curriculum and community outreach. "It is an aspirational document," she says, noting that the theme of this year's CICan Indigenous Education Symposium being held February 23-25 in Yukon is "Supporting Reconciliation Through the Indigenous Education Protocol."

Carolyn Hepburn, vice-chair of CICan's Indigenous Education Advisory Committee and director of native education and academic upgrading at Sault College in Sault Ste. Marie, Ontario, says the protocol and TRC recommendations "tie together nicely."

At Sault College, which signed the protocol in March 2015 and where one-quarter of students self-identify as aboriginal, the three Rs are "reciprocity, reconciliation and respect," Ms. Hepburn says. The TRC recommendations are about educating the wider society about aboriginal issues, she explains. "As Canadians, we have a responsibility to learn and understand the history of indigenous people in this country in order for true reconciliation to happen."

The first step to bringing "authentic change" is to "start the dialogue" with a public declaration "saying we are a college that values and respects indigenous education, people and communities," she says. "It sets the bar higher."

Kory Wilson, chair of CICan's Indigenous Education Advisory Committee, who has newly been appointed executive director of indigenous initiatives and partnerships at the British Columbia Institute of Technology (BCIT), says that brand new positions such as hers are proof that colleges are serious about aboriginal education. "They are putting money and time into this despite the challenges colleges face."

The goal of BCIT, which has not yet signed the protocol, is to increase the number of aboriginal graduates and its commitment to indigenous communities, respecting and reflecting indigenous culture and knowledge, she says. It will enhance its curriculum and student support, create greater awareness among employees and support aboriginal graduates as they transition into the workforce.

The TRC stressed that "education is absolutely vital" to achieve reconciliation, Ms. Wilson comments, especially at the post-secondary level. "We have to do it together."

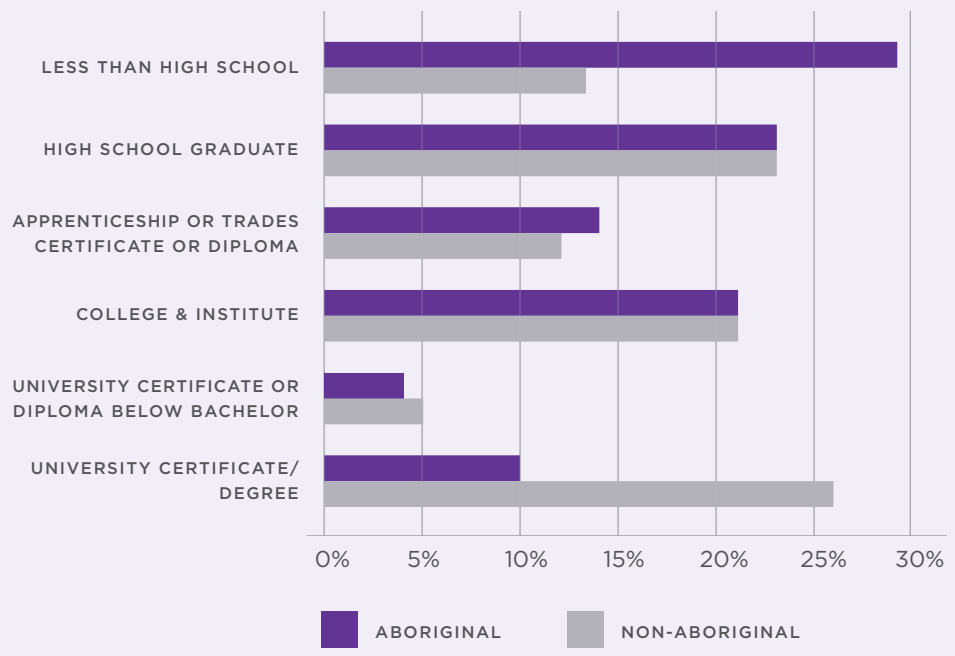
Ms. Toneguzzo says that some 80 colleges have aboriginal-specific programming, although it is also important to present indigenous issues and cultures in "more holistic" ways. "With a cross-cutting approach, you're going to reach non-indigenous students and increase their understanding of the importance of indigenous knowledge and culture in our society."

Forty-three colleges and institutes in Canada have signed the Indigenous Education Protocol to demonstrate their commitment to aboriginal education. Langara College in B.C., a signatory of the protocol, was granted a new aboriginal name – snəw̓eyəɬ leləm̓, which means "house of teaching" in the Musqueam language – earlier this year. LANGARA COLLEGE/JENNIFER OEHLER

> "With a cross-cutting approach, you're going to reach non-indigenous students and increase their understanding of the importance of indigenous knowledge and culture in our society."
>
> **Anna Toneguzzo**
> is director of government relations and policy research for Colleges and Institutes Canada

ABORIGINAL STUDENTS KEY FACTS 2014-2015

HIGHEST EDUCATION ATTAINMENT BY ABORIGINAL STATUS (25 TO 64 YEARS OLD)



COLLEGES AND INSTITUTES ARE GO-TO INSTITUTIONS FOR ABORIGINAL PEOPLES – ABORIGINAL POST-SECONDARY EDUCATION ATTAINMENT AT THE COLLEGE/INSTITUTE AND TRADES LEVELS ARE AT PAR WITH THE NON-ABORIGINAL POPULATION

ABORIGINAL YOUTH ARE THE FASTEST-GROWING DEMOGRAPHIC IN CANADA – OVER **400,000** ABORIGINAL YOUTH IN CANADA WILL BE ENTERING THE LABOUR FORCE OVER THE NEXT DECADE

80 COLLEGES AND INSTITUTES ACROSS THE COUNTRY OFFER **ABORIGINAL-SPECIFIC EDUCATION** PROGRAMS

90 COLLEGES AND INSTITUTES OFFER **SUPPORT SERVICES** FOR ABORIGINAL STUDENTS

SOURCE: STATISTICS CANADA NATIONAL HOUSEHOLD SURVEY 2011

Matching under-represented minorities with sought-after skills

With the massive Maritime Link underway to bring hydroelectric power from Newfoundland and Labrador to Nova Scotia, PowerTel requires a large skilled workforce to help erect the transmission lines that are part of the project.

Through a training program developed with Nova Scotia Community College (NSCC) and the Mi'kmaw Economic Benefits Office (MEBONS), a growing number of aboriginal powerline workers are playing a role in the giant infrastructure build.

The 15-week power line worker program allows the utility contracting company to address the skills gap and hire First Nations peoples, while bringing new opportunities to Mi'kmaw communities in the area. For NSCC, such collaborations produce key skills that companies and governments require.

"We're linking training with industry needs," says Mike Kelloway, senior manager of customized learning and entrepreneurship for NSCC, a pan-provincial post-secondary institution with 13 campuses. "That training is helping to support and grow the Nova Scotia economy."

MEBONS and PowerTel – a leading high-voltage contractor erecting the grounding system for the Maritime Link, which will carry power from the Muskrat Falls generating station in Labrador by sub-sea cable to Cape Breton Island – approached NSCC to develop the program. "In Nova Scotia, we have industry looking for skilled labour," Mr. Kelloway explains, noting that First Nations are the province's fastest-growing population.

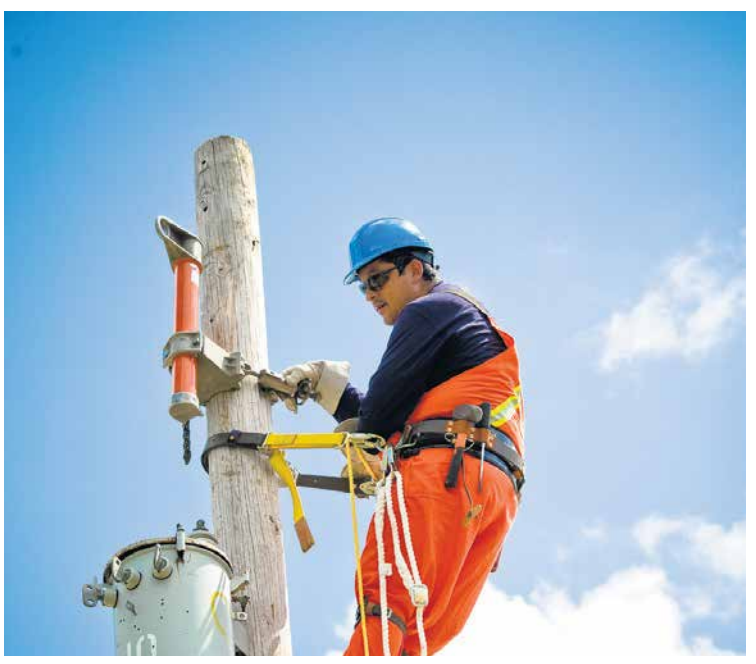
Thirty aboriginal students have so far been trained at the college's Marconi Campus in Sydney. They complete 10 weeks of classroom study in areas such as power line safety and tower erection, then spend five weeks training on the job with PowerTel.

Collin Denny, 29, a Mi'kmaw from Eskasoni First Nation in Cape Breton, signed up for the program looking for income beyond the carpentry work he does on the reserve, particularly to establish credit and secure benefits. He did the NSCC course last winter and his placement in the spring in Newfoundland, then took up a position with PowerTel in October.

The Maritime Link work happening around Catalone in Cape Breton involves cutting transmission corridors through forest rights-of-way. The workers assist with building and maintaining the power lines, from handling materials to tying guy-wires, says Mr. Denny, who would now like to become a linesman or an operator. "I could branch out and do anything."

Mr. Kelloway says participants in the NSCC program have "transferrable skills" to apply to other utility projects or other positions in the energy sector. "This is an opportunity not just for employment, but for a career and to continue education," he adds.

> "We're linking training with industry needs. That training is helping to support and grow the Nova Scotia economy."
>
> **Mike Kelloway**
> is senior manager of customized learning and entrepreneurship for Nova Scotia Community College



A Nova Scotia Community College power line worker program allows PowerTel to hire First Nations peoples, bringing new opportunities to Mi'kmaw communities in the area. SUPPLIED