Canadian universities join global race to spark innovation

Anand Agarawala was dozing off in a computer science class at the University of Calgary when he had his big idea. Seven years later, after selling his technology startup to Google, he is living his dream.

The Silicon Valley search giant reportedly paid about $30-million for Mr. Agarawala's business, BumpTop, which aimed to change the way people navigate their digital desktops, and then hired him. But the 29-year-old credits a $20,000 university fellowship with giving him the momentum to move past daydreaming.

"If we did not get that money, I don't know where we'd be," he said. "In Canada, we don't have that angel [investor] infrastructure."

As Canada struggles to keep up in the global innovation race, initiatives to help a class of student entrepreneurs build startup businesses are taking shape at several universities, which are embracing commercial concerns they once considered beyond the scope of academia.

The University of Toronto's Heffernan/Co-Steel Innovation Commercialization Fellowship, which put "the very first dollar" into Mr. Agarawala's venture, is one example of schools' efforts at grooming an innovation class. Now the fellowship is set to expand into universities across Ontario, and perhaps nationally, after helping breathe life into companies making everything from hearing-test devices to prosthetic joints.

Ottawa and the provinces are preaching with renewed urgency that future economic prosperity depends on Canada's ability to innovate. But in the past two years, the country has slipped in most key innovation indicators, according to a recent study from the Science and Technology Innovation Council.

Against that backdrop, strategies for teaching and backing entrepreneurs - once thought of as the domain of colleges - have become fashionable at universities as well.

"[Universities] thought it was pretty crass to talk about commercialization, but that's changed dramatically," said Jerry Heffernan, the U of T alumnus and steel entrepreneur behind the fellowships.

All five graduate students who have benefited from Mr. Heffernan's financing and mentoring launched businesses, and Mr. Agarawala called the fellowship "immensely helpful."
Mr. Heffernan is in the final stages of securing a system of private donors and matching federal and provincial funds - through FedDev Ontario and the Ontario Centres of Excellence - to multiply his fellowship. Instead of one fellowship every two years, there could soon be about 10 per year, worth $51,000 annually. Two more Ontario universities have committed to house fellows and others are keen to follow suit. Mr. Heffernan ultimately envisions a national program with 100 fellows each year.

"We don't just want to be the farm club for Silicon Valley," he said.

Even without offering funding, however, universities can help. U of T's Institute for Optical Sciences has just wrapped up Techno2011, the second edition of a four-week summer workshop led by its director, Cynthia Goh. It aims to teach three dozen students "to create their own jobs [in Canada]," often by "bootstrapping" - starting a business mostly with one's own cash flow, without receiving much outside capital. Techno sets an example, running entirely on volunteers and some pocket change from the university to cover catering.

"It's not any of our job descriptions, but we really feel it's got to be done," Dr. Goh said.

Two companies formed at last year's workshop are making sales, while another was beaten to the punch by digital giant Pioneer; but this year's students are learning from their experiences.

"Until I met Cynthia, I didn't have an interest in entrepreneurship at all," said Calvin Cheng, 23, a master's student in chemistry who joined three other Techno2011 participants to start building a sensor that can rapidly detect E. coli in beach water.

The U of T is not the only school to make such efforts. The University of British Columbia is launching the new Entrepreneurship@UBC centre, anchored by a privately raised "accelerator fund" that can dole out between $25,000 and $100,000 in funding to companies started by students or recent grads.

"The end goal ... is that students will say, 'I want to go to UBC because I want to start my own company,' just like they would say in going to Stanford," said Carol Leacy, the centre's program director.

Most universities reap direct benefits from licensing the fruits of research to companies, but they are now seeing the indirect benefits in supporting startups as well: A company can sponsor research even before it's profitable, or give back with expertise or donations, Dr. Goh said.

And the schools know they must play a role in stemming the brain drain of graduates to other countries. About 12 per cent of 2005 Canadian PhD graduates were living in the U.S. by 2007, and 21 per cent intended to leave Canada, according to a recent Statistics Canada study. So-called knowledge workers tend to be mobile, and some, like Mr. Agarawala, will always move away.

But in 2007, Mr. Agarawala shared the Heffernan Fellowship with Carlos de Oliveira, a recent U of T grad who quit a desirable structural engineering job to develop his master's research and found success locally. The fellowship "opened doors" through which Mr. de Oliveira built Cast ConneX, a company producing high-strength connectors used to equip buildings with earthquake-resistant braces. It is now profitable, with global sales, but firmly rooted in Toronto.

For now, university startup initiatives are largely small-scale affairs, and many depend on a few people's generosity and dedication. But the idea behind them has taken hold.

"Everyone's got at least the concept of it," Ms. Leacy said.

**Startup support at Canadian universities**

**The Waterloo hub**

For years, the University of Waterloo has been Canada's clear leader at teaching startup-style entrepreneurship,
building a broad ecosystem tied to the local tech community. The Conrad Business, Entrepreneurship and Technology Centre (CBET) is its focal point, working closely with local facilitators such as the Accelerator Centre and Communitech. The school also operates a dedicated residence building, called VeloCity, as a more informal startup hothouse.

**Digital media downtown**

Ryerson University has drawn considerable attention to the Digital Media Zone, its student-focused, high-tech incubator perched above Toronto's Yonge-Dundas Square. Launched in the spring of 2010, the DMZ is intended both to nurture student-led businesses, and to match students with industry partners looking for technology solutions. In its first year, it housed 27 startups.

**The grassroots way**

At McGill University, the Dobson Centre for Entrepreneurial Studies imitated the Massachusetts Institute of Technology by starting an annual business plan competition three years ago - the Dobson Cup, now worth $50,000 - as a way of "trawling for entrepreneurs" across all disciplines. The competition relies on experienced entrepreneurs (many with connections to McGill) and past winners giving their time as judges, which in turn builds an expanding social entrepreneurship network for students to tap into.