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# Research versus teaching

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When miners in Chile were trapped inside a collapsed mine in 2010, they taped a message to a drill bit, hoping when it was removed someone would see it and realize they were still alive. By chance, it worked.

Xavier Fernando followed the story of the miners closely. An electrical engineering professor at Ryerson, Fernando is trying to take the luck out of communicating while underground. His research investigates how optical fibres, which are hair-like strands of glass, can be used to transmit radio signals and pass information over long distances.



In the Ryerson Communications Lab, electrical engineering professor Xavier Fernando researches how optical fibres can be used to transmit radio signals over long distances. From left to right, doctoral student Wisam Farjow, Fernando and doctoral student Imran Khan.

Courtesy Luis Fernandez

**Fernando is exactly the type of professor Ryerson wants right now. He's the director of Ryerson's**

**Communications Lab**, where he supervises seven graduate and doctoral students, as well as 12 undergraduates. In 2008, he pulled in a \$475,000 grant from the Canadian Photonic Fabrication Centre and in 2009, he received a \$250,000 grant from the Natural Sciences and Engineering Research Council of Canada. Fernando is the author of more than 70 research articles and served on Ryerson's board of governors for the past two years. In addition to all his research, Fernando was nominated by his students twice for the department of electrical engineering professor of the year award.

Like the University of Toronto and York University, the policy at Ryerson is that all professors commit 40 per cent of their time to research, 40 per cent to teaching and 20 per cent to serving the university by doing things like joining committees. These numbers are not enforced, so a professor can complete them on a yearly basis or spread them out over their entire career. While universities are in the business of teaching, they have increasingly become infatuated with the business of research. **The difficulty for professors like Fernando is managing research expectations while still paying adequate attention to teaching.** After all, the 40-40-20 policy weights teaching and research equally. For students, however, the worry is: with the focus being increasingly put on research, will teaching suffer?

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In the past four years, Ryerson has moved up nine places to rank 30 out of 50 of the best research universities in Canada in a study compiled by Research Infosource. In 2009, with a research budget of \$22 million, Ryerson's volume of published research had increased nearly 95 per cent since 2004.

Fernando estimates that in an average week, he spends 45 hours on research, 12 hours on teaching and supervising collaborative projects, and five hours on administrative duties. "There is always pressure to do research. If I look at myself as an employee who is trying to make a good income and a good living, I would say it's not fair (what is expected of me)," he said. "But on the other hand, (professors) have a personal desire to publish and get big research grants."

Alex Usher, president of Higher Education Strategy Associates, a firm that provides research data and strategy initiatives to universities, governments and non-governmental organizations, says the push on institutions to do research is a worldwide phenomenon. "People said, 'Look, research is important to economic growth.' They saw it as part of a general innovation agenda," said Usher. "Academics were brought up to think and do research. The reward system pushes professors to think that research is more valuable than teaching."

The reward system Usher is referring to is tenure. "Promotion and tenure are largely based on research activities," said Ron Freedman, CEO of Impact Group, the company that compiles Research Infosource. "So if you want to get ahead in the world you have to do research."

But some students feel incentives for professors to do research causes teaching to be overshadowed. Johnny Yan graduated from aerospace engineering last year, and from his perspective the balance is



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off. "The (professors) feel like teaching courses is more of a chore for them," he said. "It's just part of the job and they have to do it in order to be allowed to perform their research duties."

This year, history professor Arne Kislenko was one of 10 recipients of the 3M National Teaching Fellowship award. Kislenko, whose research interests include 20th century international relations, modern Southeast Asia and national security issues, points out that it's possible for a good researcher to get away with being a bad teacher at university, but unlikely for good teachers to slip under the radar if they were bad researchers. The emphasis on research is "by and large motivated by money," he said. "The university is concerned with getting big grants, big scholarships, and a big profile which attracts big donors."

"Students came here and paid not to read a book but to be taught," said Kislenko. "You have every reasonable expectation as a student to have professors who give a slight damn, if not a huge one."

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Sheldon Levy, Ryerson's president, sees research as a part of the university's growth. "As the university moved from the days of being a polytechnic all the way to being a comprehensive university with a large number of PhD programs, the research agenda was important to build and it was a natural part of the development of the university," he said.

That research agenda seems to be having an effect. This year, in *Maclean's* magazine's annual university rankings, Ryerson was categorized as a comprehensive rather than undergraduate university. According to the magazine, a comprehensive university is one that has a "significant degree of research activity and a wide range of programs at the undergraduate and graduate levels, including professional degrees," whereas undergraduate universities are described as being "largely focused on undergraduate education with relatively fewer graduate programs and graduate students."

Levy says that without a research agenda the university would not be the same. "You wouldn't have graduate programs without a research agenda, you wouldn't have students participating in research programs with faculty, you wouldn't have a Digital Media Zone; you wouldn't have Ryerson. You'd have something different. It wouldn't be the university that it is today."

Despite the research agenda, Maureen Reed, director of Ryerson's Learning and Teaching Office (LTO) and a professor of psychology, says that the university still puts an equal emphasis on teaching.

"In the past five or six years, there's been a big push at Ryerson to up the level of teaching," she said. "The majority of faculty is interested in teaching and the welfare of the undergraduates because that's our bread and butter. You need the undergraduates to survive as an institution."

In 1993, the LTO was established to provide training to assist all faculty members in developing their teaching methods, skills, curriculum, marking strategies and to "strengthen the connection between teaching and research." New professors are required to attend three mandatory teaching sessions during their first year at Ryerson.

The faculty teaching chair program is another one of the LTO's initiatives. Each faculty chooses one professor to act as the teaching chair. They are responsible for addressing any faculty-specific teaching or learning concerns and suggesting solutions. For example, in the Faculty of Engineering, Architecture and Science the concern was how to manage the large first-year engineering classes that can hold up to 300 students per lecture, compared to the university's average class ratio of 60 students per class.

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"Every successful company I know makes choices, because if they don't make choices and they don't say that some things are more important than others, they can't succeed," said Harvey Weingarten, the CEO of the Higher Education Quality Council of Ontario and co-author of a report that came out last fall urging universities to differentiate from one another instead of all pursuing the same goals.

"I think it's fair to say that the University of Toronto will always do more research in more areas than Ryerson," Weingarten said. "Ryerson has a reputation for being more tied to the community, more entrepreneurial, a little more frisky and less traditional than some other universities. Why not build on that?"

Regardless of Ryerson's reputation for being a non-traditional university, professors are still required to divide their time based on the 40-40-20 policy — the same policy used by research heavyweights such as U of T. And for many professors, finding the balance between research and teaching is not always easy.

"In essence, I don't spend much time with my family," Fernando said. "I spend a lot of my time (at the university)."

"If we don't teach properly there's no point being a professor. But if you want to get a promotion then you have to do research."

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## Comments (3)

**Waran** writes:

02/01/2012

Ryerson is proud of having such Professors.

**Antony** writes:

11/26/2011

Excellent work.. Congrats!

**khusaini** writes:

11/23/2011

but not all of people can do that

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