

Memorandum

To: The Prime Minister

From: Roger L. Martin, Dean, Joseph L. Rotman School of Management

Subject: What Canada Could be for Education in the 21st Century

As we move into the 21st century, knowledge and skills -- what we think of as human capital -- will become the critical determinants in the economic success of both nations and individuals. When your predecessor Wilfred Laurier proclaimed almost one hundred years ago that the 20th century would belong to Canada, he was basing his claim on Canada's abundance of natural resources.

Canada in the 21st century can go beyond its traditional role as a purveyor of natural resources. If we make the right strategic investments in education at all levels, Canada can not only prosper and succeed, but will become a leader in the global economy. Innovation is the key to competitive advantage in new world order, and intellectual capital is the coveted new currency. Investing in education is no longer a social choice, it is an economic imperative for our nation's survival.

Government needs to put a premium on education at all levels, from pre-school to post-graduate. But more of the same and increased spending alone won't cut it. We need a profound values shift and a radical reinvention if we are to lead the world in the creation of the most valued commodity in the coming century: knowledge assets -- more particularly -- what we at the Rotman School call "integrative thinkers".

Creating the best education system in the world won't be easy. Globalization, the rise of technology, and a greater emphasis on the autonomy of the individual mean we need to think about education in new ways. In the new millennium, the world will be an increasingly interconnected place. We need to look at education holistically -- as a total system with continuity through all levels. Right now, we are doing the opposite.

We do not teach students to see the world as an interconnected place. We do not teach students to see the big view, to think integratively. We do not teach them to function in a complex world.

The fundamental educational experience of our students now is that they learn in silos, right from kindergarten, a stale curriculum that does not connect to the society in which students actually live and function. We can't produce integrative thinkers with a non-integrative machine.

Why do we teach our children to think in silos and not integratively? There is some sense to it, but plenty of nonsense as well.

On the sense side, the world of knowledge is vast. We can't expect everyone to tackle it like a Renaissance scholar. And in fact if we did, we would confuse and demotivate the vast majority of students. In the terminology of learning scholar James March, we pursue simplification and specialization to handle the complexity of the challenge of learning in a vast sea of knowledge. As such, a critical part of education involves breaking the interconnected world into chunks – simplification – that can be tackled and mastered one by one –specialization. This makes sense. Our students need to gain mastery, and mastery is achieved more quickly with simplification.

On the nonsense side, we have become so comfortable with the drive for mastery that we have forgotten in the educational world about the interconnectedness. We simplify and implicitly believe that multiple specialization will educate our students well. That is, if we provide them with a wide assortment of simplified subjects – seven to ten at a time during elementary and secondary school, four or five at a time at university – we will provide students the insights on interconnectedness that we take away through simplification into educational silos.

That is where the fallacy lies. Side-by-side learning of topics does not equate to integrative learning. Understanding how to integrate across models in order to build a meta-model is as much an area requiring knowledge and mastery as is arithmetic, chemistry, marketing, or torts. Across the world of education, we don't teach mastery of integration. As a result, students learn how to simplify and specialize but not how to integrate.

The adverse consequences are numerous. As students practice simplification and specialization, they become blind to the need to integrate, in due course seeing the world in silos. As a consequence, they find the interconnected world more complicated and worrisome than they would if they had integrative skills. MBA graduates reorganize the assembly line for efficiency, following what they learned in operations management, and are perplexed when the workers revolt, even though they learned something about employee satisfaction and morale in human resource management. Rather than understanding and mastering the real and interconnected world in which they live, they attempt to continue viewing it through the simplified lens we have taught them.

Perhaps most problematically, they do not learn to deal productively with model clash. Integrative thinking teaches students that models clash all the time and that the work of a thinker is to build new models that overcome the clash. For the MBA above, the integrative challenge is building a meta-model of efficiency that takes into account what mastery in operations management and mastery in human resources management bring into direct conflict. Current education teaches students that when models clash it is a big problem not a nifty challenge to overcome and that the job is to pick one model over the other and accept the inevitable consequences.

The integrative thinker is a relentless learner who seeks to develop a repertoire of skills to enable him or her to engage the tensions between opposites long enough to transcend duality and seek novel solutions. The integrative thinker develops a stance that embraces rather than fears, the essential qualities of enigmatic choices. Integrative thinkers understand that learning is an art –a heuristic process, not an algorithm with pat or formulaic answers. In short, integrative thinking is the educational paradigm we need to adopt if we are to produce citizens capable of processing and responding to the rapid change and complexity that will characterize our world in the coming century.

Creating an education system that can produce integration is no small task. Right now, as the world changes rapidly and our stale educational bureaucracy refuses to change, young people are ahead of us. Unlike their teachers, principals and University administrators, they are dialed in to the Internet and they are already connected to a global bank of knowledge and people that is starting to make their school experience seem less and less relevant. Many of them no longer bother with studying and extra-curricular activities, but are participating in the real world by working after school and communicating globally over the Internet.

We need to bring these young Canadians back to the classroom by designing an education system that fosters creative and integrative thinking. Doing so will not only create great knowledge assets for Canada – it will also be how we will attract the century's most coveted resources from other parts of the globe. In a world where people can work anywhere, over the Internet, who wouldn't want to raise their family in a beautiful northern country with the best education system in the world? What company wouldn't want to locate where the world's best thinkers are trained, near to universities with the best R &D, the best research, and the best ability to innovate?

At a meta-level, the difference in producing citizens is dramatic. Integrative education teaches our citizens that models routinely clash and that when they do, the hard and fun work has just begun. When these citizens come into conflict – I think x and you think not-x – they have a skill-set and a propensity for creating an answer that creatively resolves the difference. Traditional education teaches our citizens that when models clash, they have an insuperable problem and the choice is to produce a winner and a loser.

The former creates continuous learning and the building of ever more powerful models of understanding our interconnected world. The latter perpetuates a world that can be nasty, brutish, short. Canada's role in the world should be as an educational beacon for the former, not a contributor to the sorry rule of the latter.

Better education in Canada not only means a bright economic future here, it means a better world. Our citizens will be healthier, more likely to be employed, and more likely to participate in a civic society – yes. But it will also mean that as a society we are ready to participate and lead in an increasingly complex world. Helping young people learn to think integratively will not only produce better students, better future employees, and better thinkers, it will also produce compassionate world citizens. Those

with a view big enough that we can trust them to be the custodians of our fragile planet.

If we invest in this, Prime Minister, the 21st Century could belong to Canada in a way that none of your predecessors could ever have imagined. We will not only help create a just society in Canada, we will perhaps help create, for the first time in history, the hope of a just society in the world.