Canadian Education Association / Association canadienne d'éducation

SCOPE Stanford Center for Opportunity Policy in Education

Improvement, Not Innovation, Is the Key to Greater Equity

A provocation paper prepared for the
Canada-United States Colloquium on Achieving Equity Through Innovation
Toronto, October 27-28, 2010

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This paper makes two main points.

First, I argue that Canada's substantial educational advantage vis a vis the United States means that policy approaches to improvement will be quite different in the two countries. Second, I argue that the prime requirement for greater equity in education is not so much innovation – in the sense of new programs or models of schooling – as wider use of practices we already know to be effective. Indeed, there is probably too much emphasis on innovation in education, not too little.

Part 1 – Canada and the U S

Paramount Pictures recently released a movie about education in the United States called "Waiting for Superman". The movie shows the challenges of urban education in the United States and ends with several families desperately hoping to win admission to charter schools through lotteries as the vehicle to a better education for their children. (In the end only 2 of 5 do get admitted to their school of choice). While the movie displays the plight of many urban schools, there is a danger that its message could be taken as applying equally to Canada, which in my view it does not.

Living next to the United States, Canadians often assume that what is said about education south of the border applies north of it as well. However Canada's educational outcomes are much superior to those in the United States as measured by all international rankings. In PISA (the most widely used international comparison test, administered by the OECD), Canadian 15 year olds have scored among the top 5 countries in each of the 3 rounds, well above the OECD average, while U S 15 year olds score at about the international average. For example, in Science in 2006, Canada ranked 3rd among 57 participating countries while the US ranked 20th. The difference between the two countries was close to half a standard deviation – equivalent to about a full year of schooling. In the 2006 PIRLS study of reading in 40 countries, the provinces

of Alberta, British Columbia and Ontario ranked 3rd ,5th, and 7th while the U S was 18th, although in this test the difference between the two countries was much smaller in absolute terms. In TIMMS grade 8 mathematics in 2007, Ontario (as a representative province) was tied for 6th among more than 40 countries, just a little ahead of the United States (whereas in the same test, grade 4 students in the US had outperformed Canadians).

The differences are not only in average achievement, though, but also in equity. The difference between the best and worst performing students in PISA in Canada is among the smallest of all participating countries, but among the largest of all countries in the United States. Canada has a much smaller proportion of its students performing at very low levels. In the United States, the achievement of African-American and Hispanic students badly lags other students. While we cannot make an exact comparison to Canada, which does not collect achievement data based on ethnicity, Canada is one of very few countries in PISA in which students born outside the country achieve as well on average as students born in the country.

In other words, and much to the surprise of most Canadians, we have one of the highest performing education systems in the world, particularly taking into account our highly diverse population.

There are two main areas of difference between the two countries that I believe lead to these very different educational results.

First, the social conditions in the two countries are very different. Canada has less overall inequality, less child poverty, many fewer very low wages families, better housing, less crime, less infant mortality, and so on. So young people get a better start in life on average, are better prepared for schooling, and better supported in their lives outside of school. Immigrants are better supported to adjust to Canada. Difference is respected more. Our inner cities have not languished like those in many US cities. Since this symposium is about education, I won't say much about these issues except to point out how important they are, since these factors continue to show powerful effects on education outcomes everywhere. Any country that wants to improve education outcomes and reduce disparities will also have to tackle some of the gross disparities outside the education system, especially since schools are already usually less unequal than other parts of the society.

Second, Canadian education policy has some substantial advantages over U S education policy, including:

- Much more equitable financing. We have nothing like the huge disparities in spending among U S school districts and in general our poorest districts spend more per pupil, not less;

- Better qualified and motivated teachers, in large part due to strong teacher unions that have negotiated decent pay and working conditions but also due to a more consistent focus on effective professional learning and leadership;

- Less diversity in quality of schools due to provincial curricula, regulations, financing, and other quality control systems.

Most importantly, Canadian education systems are seen as systems, in which provinces and school districts have a shared responsibility for ensuring quality at all levels and for all students. Of course Canadian schools often fall short of that standard, but the standard is much more evident than it is in the United States. (The exception in Canada is on-reserve Aboriginal schools which, although much better than they used to be, still suffer in many cases from very poor performance.)

The ideas getting the most attention today in education policy in the United States, such as charter schools, merit pay for teachers, and 'turning around' failing schools cannot by themselves produce system improvement because they are not a system strategy. The essential task is to commit to making EVERY school at least decent, and having every school improving, so that children's life chances do not depend on a lottery!

Part 2 – Innovation versus improvement

My second point is that we should be cautious about embracing transformation and its handmaiden, innovation, as the requirements for schooling. I take the view that the more promising avenue in terms of student outcomes, even broadly defined, would focus instead on improving existing school systems by focusing on better outcomes for more students within relatively traditional metrics. I believe that the focus on innovation and transformation could distract us from what is both possible and desirable in order to pursue goals that may be desirable but are not very possible.

In one of his typically brilliant pieces, James March (1991) pointed out that all organizations need a combination of what he called 'exploration' (another word for innovation) and 'exploitation' (another term for system-wide improvement based on known ways of getting results). March notes that an organization that does not innovate will die, but that too much innovation is also a bad thing. The real profits of an organization, be these financial as in businesses or improved student outcomes as in schools, come, March argues, not from innovation but from putting in place across the organizations ('exploiting') what is known to be effective. Too much innovation gets in the way of that exploitation. As March puts it,

> Adaptive systems that engage in exploration to the exclusion of exploitation are likely to find that they suffer the costs of experimentation without gaining many of its benefits. They exhibit too many undeveloped new ideas and too little distinctive competence. (1991, p. 71)

The precise balance between exploration and exploitation will differ from one setting to another, but in most cases, March's formulation suggests that making effective use of what we already know will be a much bigger element. Yet it appears that in the case of schools, innovation has been more the order of the day, but with few innovations either reaching scale or being sustained.

It takes very little effort to think of many widely promoted and adopted innovations in education that never managed to get widespread traction or produce lasting benefits, from open classrooms decades ago to brain-based education today. Any veteran teacher can describe a whole series of programs, projects or policies which were touted as miracle innovations yet a few years later had vanished.

I am not arguing that all of these were bad ideas. My point is that they did not change the education system as a whole and so did not create lasting improvement.

It is in the nature of innovation to have this pattern. Most innovations will turn out to be ineffective, or very difficult to do, or very expensive. This is true in every area of innovation. Most new business, for example, fail (Pease, 2009; see also http://smallbiztrends.com/2008/04/startup-failure-rates.html).

Information technology is a particularly interesting example because it is one of the most frequently cited grounds for requiring significant change in schooling. For fifty years we have been hearing that changes in technology would fundamentally change the provision of education. This argument was made about television, and then about computers, and now about personal devices such as notepads or I-pads and social networking. But fifty years of history shows that the promise has never been achieved. A decade ago Cuban (2001) laid out this failure in detail. Since then we have had more examples – such as smart boards in the United Kingdom (Moss et al., 2007) and individual laptops. Reviews of research have concluded that none of these have had any discernable impact on student learning (Burns & Ungerleider, 2003). One might argue that the continuing effort to implement technologies in schools has been one of the biggest wastes of time and money in the recent history of education – all in the name of innovation.

The alternative to a focus on innovation is more exploitation (in March's sense) of what we know. A sceptic might ask if we have sufficient reliable knowledge in education to be exploited. My

answer to that is a resounding yes. Of course there is a great deal we do not know about good educational practice, but there is also a considerable amount that we do know - by which I mean practices supported by substantial amounts of empirical evidence from multiple sources all pointing in similar directions. I advance the view that if we were using everything we already know about effective schooling in virtually all schools, we would achieve very large gains in outcomes.

Hattie recently (2009) meta-analysed some 800 other meta-analyses of research in education and compared the relative effect sizes of more than 130 different programs, strategies and interventions – from formative evaluation to cooperative learning to class size to retention in grade. Marzano (2007) has done something similar. There are, of course, limitations to this kind of secondary analysis. Because each rests on different quantities and bodies of evidence, the conclusions and ranking of interventions or approaches can only be regarded as indicative. The findings are, however, highly suggestive (and very consistent between the two authors). Moreover, many of the ideas that had the most powerful effects are still very far from common practice in our schools. For example, formative evaluation and student self-reporting of grades had among the very highest effect sizes, confirming the view of others that formative assessment has powerful positive effects on students' work while many other assessment practices, such as averaging grades or using marks to control behaviour, have negative impacts. Yet formative assessment is still uncommon in many, perhaps most, schools.

To take a different example, failing or retaining students in grade is associated with worse outcomes both short and long-term (Hattie, 2009; Jimerson, 2009) yet continues to be common, especially in secondary schools. Indeed, the widespread belief that failure is a good life lesson for children flies in the face of a huge amount of evidence showing that failure tends to depress effort, not increase it (National Research Council, 2003).

Take a third example—student motivation. We have a lot of evidence on the kind of practices that students find motivating (an excellent summary is in National Research Council, 2003).These are pretty similar to what motivates adults— worthwhile tasks, some autonomy in how to do them, good feedback, good colleagues to work with, opportunities to learn and improve. These features lead to more effort and better results. Yet to a large extent these principles are not common practice in schools. Recent Canadian evidence (Willms et al., 2009), as well as international evidence from PISA (Willms, 2003), shows how few students in secondary schools report high levels of engagement with their schooling.

How much improvement could we generate through a serious and sustained effort, basically using what we already know? The answer to this question is that we do not know what might happen because few efforts of sufficient scope and scale have been made.

We do, however, know three things.

- Over time, levels of education achievement have increased dramatically around the world, and sometimes in spectacular fashion over relatively short periods of time (none of these, incidentally, due to any particular transformations or innovations).

- There are large differences in school performance among schools, and among classes within schools, suggesting that the right practices can have powerful effects even given difficult external factors such as student demographics.

- Interventions in individual schools and systems have regularly (though certainly not always) produced powerful results.

These three demonstrated facts suggest that the limits of improvement are unknown, that there are grounds for being quite optimistic about what is possible.

What would it take for a real focus on improvement? Space does not permit a full discussion (but see Levin 2008, 2010). The key elements are fairly easy to describe, but much harder to put into practice. They would include:

- A small number of simple, clear, powerful goals, sustained over years.

- Strong leadership from politicians and educators.

- A positive approach to helping people get better at their work in regard to the key goals.

- An adequate infrastructure to support learning and improvement in all schools, with even more focus on supporting schools and population groups that lag behind.

- A focus on improving daily teaching and learning practices based on solid evidence.

- Active engagement of all partners and stakeholders at all stages.

This is how improvement has been generated in many areas of human activity – more by unrelenting effort at small improvements than by giant breakthroughs or transformations, which are few and far between. There is, to be sure, some role for innovation in this effort. We need to learn more about effective education, and we do need to continue to innovate for that purpose – with careful evaluation of whether the innovations produce good results. But innovation is less important than a better exploitation of what we know about effective education.

References

PISA data are available at many sites, but primarily from the OECD. http://www.oecd.org/department/0,3355,en_2649_35845621_1_1_1_1_1,00.html

PIRLS data are similarly available at multiple places but primarily http://timss.bc.edu/

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