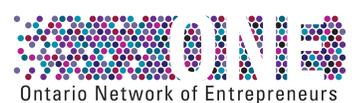# Millions of Solutions

The imperative to involve teachers and students in educational reform

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MILLIONS OF SOLUTIONS

The imperative to involve teachers and students in educational reform

Since the 1980s, educational reform has been driven by the assumption that schools are broken. From government reports such as 1983's *A Nation at Risk: The Imperative For Educational Reform*, to Sir Ken Robinson's 2006 TED talk which asked "Do Schools Kill Creativity?", an overarching complaint about the education system has remained constant. Students, so the complaint goes, are being let down by a dysfunctional system that is not doing enough to prepare them to take the helm of tomorrow's world.

The narrative of the broken school is a compelling way to focus attention on the need to rethink the education system, but it is not a particularly useful starting point for reform. Ronald Heifetz, Alexander Grashow and Marty Linsky argue convincingly that the idea of the broken system is a myth. In their work on adaptive leadership, they point out that each system is perfectly aligned to produce the results it currently gets.[1] Viewed in this way, systemic reform becomes possible when we understand why a particular system is effective at producing the results that it does. We can then recalibrate it to produce the results we desire.

There is a vital distinction between fixing something that is broken and recalibrating something that works. When something is broken, attention is focused on identifying and extracting deficiencies. Over the past three decades, growing concern about deficiencies in the education system has led to the intensification of standardized testing and increasingly vehement calls for greater accountability. This has led to a narrowing definition of what it means to be successful and marginalizes both students and teachers. When the focus is on fixing the system, the students and teachers within it become mere data points that quantify the extent to which system-wide, top-down solutions are working.

Conversely, when we approach the school system as something in need of recalibration rather than repair, we are more likely to invest energy to support and leverage its existing strengths. Overlooked amidst the preoccupation with the system are the millions of people within it. Teachers and students, we should never forget, can be sources of education—not simply its consumers.

People's insatiable appetite for learning has never been more visible than it is right now. The desire to learn from each other is driving the growth of the 21st century's most dynamic environments, including the online communities and co-working spaces that are redefining how we work, learn and collaborate. Unlike the school system, these convivial learning environments continue to evolve at the same pace as their participants precisely because it is these participants who define them.

The school system is not broken. It is perfectly aligned to provide equitable access to a canon of high-quality, standardized content with greater rigour and organization than any other knowledge delivery system we currently have. However, it is not designed to foster the problem-solvers, innovators and entrepreneurs that are becoming an increasingly significant part of the global economy. Incorrectly identifying this misalignment as a broken system has created a culture of fear and failure around education, leading to top-down reforms and increased numbers of mandatory programs. When this happens, students and teachers learn that education is something that is imposed rather than participated in, and lose the incentive to take creative risks or produce anything beyond what is directly demanded of them.

While the school system may not be broken, many of the large-scale reforms meant to bring it into the 21st century certainly are. Top-down reform is simply too far removed from teachers and students to adequately address their rapidly evolving needs or leverage their diverse strengths.

There is no single solution to the challenges of adapting education to the demands of the new millennium—there are millions of them. Meaningful educational reform is possible if schools recognize and support students and teachers as catalysts for change, without losing sight of the perennial values that the education system has been designed to maintain. This recalibration starts by understanding how the current school system evolved to meet a specific set of important needs, learning from the mistakes of past and current educational reforms, and drawing inspiration from innovative learning environments outside the school system.

EQUALITY, BRUTALISM AND THE MODERN EDUCATION SYSTEM

The modern education system in Canada and the United States developed from the 1930s to the 1970s around the core concepts of equity and efficiency. The idea that every citizen should be guaranteed certain fundamental opportunities started to gain widespread currency during the Depression years. As a social safety net was woven into governmental policy, education was increasingly held up as the cornerstone of an equitable, unified and progressive society.

After the atrocities of the Second World War, the ideal of education as society's great equalizer took on even greater urgency. Article 26 of the United Nations' *Universal Declaration of Human Rights* (1948) identified free, mandatory education as a basic human right.[2] It is no surprise then, that as governments sought to build a system of education to prepare the post-war generation, they framed its value in terms of equality. When outlining the future of education in Ontario, the 1968 *Living and Learning* report (more often referred to as the Hall-Dennis Report) quoted directly from Article 26 in its preamble.[3]

Given this ideological foundation, it is not surprising that by the 1950s, the still-evolving school system in the United States became a testing ground for ideas emerging out of the Civil Rights Movement. It was in 1954 that the U.S. Supreme Court came to its seminal decision on the matter of racial segregation in *Brown v. Board of Education*. The Court's ruling that "separation is inherently unequal" was a major victory for the nascent Civil Rights Movement, and also powerful affirmation that schools should be places where everyone is treated the same.

By the 1960s, the education system's egalitarian ideology was increasingly expressed in its physical architecture. New schools had to be built for the 8.6 million children born in Canada in the twenty years following the war, a birth rate 18% higher than the previous two decades.[4] Fortunately, as a result of the postwar economic boom in North America, there was capital to back up these expansion plans. The $1.7 billion spent on Canadian education in 1960 ballooned to over $11 billion by 1974, an exponential growth rate not seen before or since.[5]

The layout of these new schools was designed to deliver the social ideal of universal access using the proven industrial techniques of specialization and mass production. Whereas their parents most likely attended a school in which multiple grades and subjects were taught by the same teacher, often in the same physical space, the baby boomers learned in schools with walls dividing grade, department and subject.

This model of industrial efficiency and specialization helped to assure equality for students because it was designed to deliver a standardized product. The ideal of standardization also found form in specific architectural styles popular in the 1960s, most notably in brutalism. Derived from the French word for "raw," brutalism favoured the simple aesthetic of unfinished concrete to define straightforward, unpretentious spaces. The style was adopted by many educational organizations for schools, libraries and, in the case of the Toronto District School Board, its head office.

Toronto District School Board headquarters, 5050 Yonge Street, Toronto, Ontario

Source: Wikipedia entry: Toronto District School Board

Central Technical School, Toronto District School Board

Source: Spacing Toronto

This architectural form's unambiguous representation of strength, utility and uniformity serves as the perfect visual metaphor for the moment at which the modern school system's value proposition was being cemented. These new fortresses of education would guard against the inequities perpetrated by previous generations and ensure that all post-war youth had the skills needed to succeed in the closing half of the 20th century.

These large-scale physical transformations also demonstrated the increasing complexity of modern education. The Hall-Dennis Report notes that:

> ...the small school and the local school board have outlived their day. The complexities of modern education demand larger units of instruction and administration. More sophisticated facilities, increased costs, greater urbanization, requirements of industry, improved methods of travel and communication, and many other factors have made obsolete the small school and the small unit of organization.[6]

Changes in the physical architecture of schools occurred in tandem with changes in how these spaces were administered. Larger bureaucracies and more uniform policies were needed to measure and standardize the output of schools. In 1961, there were 3,700 school boards in Ontario alone, which posed tremendous challenges for the uniform education of the post-war generation. A process of board amalgamation ensued over the next four decades. By 1996, the Ontario School Board Task Force was recommending that the number of boards be reduced from 124 to just 72 across the province.[7]

The result of this period of amalgamation was the precipitous growth in the size and complexity of each board. When the Toronto District School Board was founded in 1998 out of the amalgamation of six adjacent boards, it became the largest school board in Canada. With an annual operating budget exceeding $3 billion and nearly 33,000 full-time employees, it also became one of the Canada's largest enterprises.

On one level, education systems in North America have been extraordinarily successful. They built the then-fledgling ideal of universal equity into their policies and the very structure of their buildings. They applied lessons in industrial production and efficiency to provide an essential service free of charge to millions of youth at a time of unprecedented population growth. In the process, they have grown to become some of the largest and most complex organizations on the continent.

But this success has come at a price. Like the brutalist architecture present in so many educational buildings, school systems were built to favour strength and uniformity over flexibility and innovation. Such rigidity is increasingly out of alignment with an age defined by responsive design and mass customization. This problem is compounded by well-meaning but misguided educational reforms that seek to update education using a rigid top-down approach that belongs to the previous century.

THE WRONG WAY TO REFORM EDUCATION

Pasi Sahlberg, professor at Harvard's graduate school of education and author of *Finnish Lessons*, has received international attention for his criticism of the prevailing methodology to reform education systems. That he chose to label this methodology the "Global Educational Reform Movement" (or GERM for short) speaks volumes about his concerns about its unhealthy consequences and viral dissemination.[8]

GERMs are spread largely by fear of being left behind. Evidence of this fear can be seen as far back as the 1980s with the publication of the alarmist report, *A Nation at Risk: The Imperative For Educational Reform* (1983).[9] Published by Reagan's National Commission on Excellence in Education, the report did much to popularize the idea

that schools were failing. In its opening lines, the report channels Cold War anxieties about threats to America's global dominance:

> Our Nation is at risk. Our once unchallenged preeminence in commerce, industry, science, and technological innovation is being overtaken by competitors throughout the world.[10]

This fear was contagious. In the closing decades of the 20th century, educational discourse across North America changed dramatically from the tone of the Hall-Dennis Report. References to the *Universal Declaration of Human Rights* were replaced by the language of dysfunction and failure. In a longitudinal investigation into educational policy in Ontario, political scientist Ronald Manzer notes that reports on public education written throughout the 1980s and 1990s were unified in their critique of the system's "muddled purposes, fragmented curricula, and inadequate accountability."[11]

These critiques have persisted well into the 21st century, and have continued to frame the problems of education in terms of their national impact. In a 2011 report titled *What is the Future of Learning in Canada?*, the Canadian Council on Learning warned that the lack of country-wide uniformity in education standards would lead to a continuing decline of student achievement and the erosion of Canada's economic competitiveness.[12] In early 2014, the Organization for Economic Cooperation and Development revealed that Canadian students had slipped to 13th place in an international survey of math scores. Reflecting the fearful rhetoric underlying so much educational discourse, former deputy Prime Minister John Manley referred to this decline as being "on the scale of a national emergency."[13]

Presenting the problems of education as a national threat poses significant barriers to meaningful educational reform. States of emergency elicit short-term problem solving strategies in which energy is focused to triage the worst of the damage. This provides little space for longer-term, more holistic approaches that consider the nuances of the problem.

Global Educational Reform Movements are certainly more about triage than nuance. Their modus operandi is a top-down mandate for higher educational standards, calls for greater teacher accountability, and more standardized measures of success. Driven by the desire to prove national worth, GERMs focus on improving skills that are assumed to endow a global economic advantage. When measuring success, they tend to focus narrowly on literacy, mathematics and science. The math and literacy tests from the EQAO (Education Quality and Accountability Office) in Ontario and the new Common Core curriculum in the US are just two examples of the presence of GERMs in how we prepare our students.
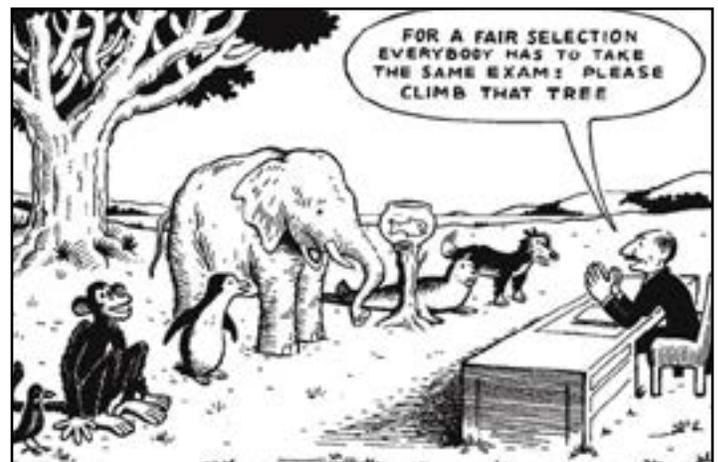
Source: Standardize.me

The architects behind the GERMs seem to have looked backwards to their own experiences as students to help them define academic success for the 21st century. The narrow focus of EQAO testing and Common Core curriculum would be more at home in the previous century, when school was designed to help students master the "Three Rs" (reading, writing and arithmetic). These basic skills were sufficient to prepare students to enter a relatively predictable workforce defined by a collection of familiar, long-term employment options. With a solid foundation of literacy and math, students in the 1960s could secure a lasting career in which they could develop sector-specific skills over the decades they would spend with their company. However, this is no longer the case in the 21st century.

The traditional jobs that schools were originally designed to prepare students for are disappearing. The CBC recently shared the results of a 2013 study from the United Way and McMaster University that revealed that only 50.3% of the workforce in the Hamilton-Toronto area had traditional full-time jobs. 18.3% of this same workforce reported that they had only been able to find "insecure employment." That same article goes on to cite a Statistics Canada labour survey that found a 45% increase in self-employment in Canada between 1989 and 2007.[14]

In 2015, the *Globe & Mail* published an article that tellingly asked, "Should Target stores be converted into co-working spaces for startups?"[15] Beyond the spectacular collapse of Target's Canadian expansion plans, the article drew inspiration from seismic shifts in the workforce, citing a report by financial software company Intuit that predicts that 40% of the American labour force will be contract workers by 2020.[16] The suggestion that one of America's retail juggernauts be reinvented as a home for freelancers and entrepreneurs is a poignant reflection of this transformation.

The expanding world of co-working and entrepreneurship is one of diversity, creativity and self-direction. It is little served by educational reforms that call for more standardization, test writing and top-down mandates. Unfortunately, the fear-driven and highly politicized nature of educational reform makes it all but impossible to address this misalignment at a systems-level with the required cooperation. This can be vividly seen in the labour unrest that continues to plague the Ontario school system. During mounting tensions in the spring of 2015, the Elementary Teachers Federation of Ontario (ETFO) announced that they would not be administering the EQAO tests. According to ETFO president Sam Hammond, the action was to prove "ETFO's contention that the tests are not needed."[17] EQAO chief executive Bruce Rodrigues criticized the action because it "deprives the students of Ontario, the parents, the schools and boards, and certainly the public."[18]

In its efforts to mollify the public and increase the competitive advantage of the country, the educational reforms of the past four decades have done much to alter the structure and content of the system, but little to help the people within it. Instead, these reforms have trapped students and teachers in the middle of warring bureaucracies, each with differing opinions about how the system should be used.

This antagonistic environment, in which change comes in the form of top-down mandates, is dramatically different from the collaborative learning and working environments that are reorganizing the world outside of formal education. With this in mind, we should be looking to these environments to inform the recalibration of the education system.

LOOKING OUTSIDE THE SYSTEM FOR INSPIRATION

The proliferation of online learning communities shows us what can happen outside of traditional school architecture. Khan Academy's mantra that "you can learn anything" is backed up by an expanding collection of free online materials available in 36 languages to a student body of 10 million strong (twice the number of all the elementary and secondary students currently enrolled in Canada). Students and teachers can also create educational playlists on iTunesU, collaborate virtually using the free Google Apps for Education and gain access to some of the world's most acclaimed universities through Coursera.

Even more interesting are examples of educational communities that have formed accidentally. When YouTube was first launched in 2005, it certainly didn't have education in mind. In fact, founders Chad Hurley, Steve Chen and Jawed Karim originally toyed with the idea of using the platform as a video-dating site.[19]

Today, users rack up almost three billion hours on YouTube each month (that's more than 325,000 years of content viewing every 30 days).[20] While viral videos of sneezing pandas certainly account for a share of this time, so do an astonishing number of user-generated lessons on everything from installing hardwood flooring to simplifying algebraic expressions. An enormous number of educators currently use YouTube to curate engaging content for their students. YouTube EDU has over 10 million subscribers;[21] an impressive number dwarfed by the millions more who take advantage of the site's massive library without bothering to officially subscribe. And as a testament to its pedagogical power, teachers have even created YouTube videos to share strategies for harnessing YouTube in the classroom.[22]

The widespread availability of online educational content makes it easy to assume that the answer to education's current identity crisis is to furnish classrooms with more iPads and better wireless connectivity. This assumption misses the point entirely. The educational power of YouTube, along with wikis and other digital-sharing platforms, comes not from the technology itself, but rather from the agency it leverages in the people who use it. Technology is simply amplifying the natural human capacity and desire to search for and share knowledge, and hints at the potential of what is possible when that sharing takes place outside of 20th-century school architecture.

This innate ability and desire to learn in a self-directed way was demonstrated with dramatic effect in Sugata Mitra's "Hole in the Wall" project.[23] In this remarkably simple series of experiments first conducted in 1999, Mitra installed computer kiosks in the middle of some of the world's most impoverished areas (first in rural villages in India, and later in Cambodia), and waited to see what would happen. To his delight, children in these areas quickly learned how to operate and learn from the device with nothing more than their natural curiosity and collaboration skills to guide them. Of course, this capacity doesn't need any technology to be realized. As any elementary school teacher will attest, if you give children a ball and an open playing field they will quickly organize themselves into teams and teach each other both familiar and invented games.

Online communities, Mitra's Hole in the Wall experiments and the playground all demonstrate the educational potential of wide-open spaces. It should be noted, however, that these spaces alone are insufficient to prepare students for the demands of the 21st century. Maintaining open spaces for creativity while providing organization and expertise is a difficult balancing act, to say the least. Fortunately, there are individuals and organizations already doing this. By looking to the world of entrepreneurship, we can discover techniques used by some of the world's most innovative and successful learners.

LET'S PIVOT (RATHER THAN REFORM) EDUCATION

Eric Ries, author of *The Lean Startup*, argues that the ability to "pivot" is at the core of the ability to innovate. He first described the concept in a short blog post called "Pivot, Don't Jump to a New Vision" in which he emphasized ongoing testing and iteration as the catalysts for entrepreneurial success.[24] Since writing this blog back in 2009, Ries has refined his explanation of what it means to pivot. He has more recently encapsulated this process as "a change in strategy without a change in vision."[25] He argues that organizations that can change their approach without losing sight of their goals are "built to learn" and are therefore ideally positioned to succeed in an age of increasingly rapid change.

Our current school system was built to teach rather than to learn. Designed to deliver knowledge with maximum efficiency and uniformity, it excels at reproducing existing knowledge and processes, but it struggles to learn and adapt. However, while the school system may not be not well positioned to pivot or learn, the people within it are.

The same gravitational pull that draws people to engage in teaching and learning via wikis, YouTube and other massive online learning hives has already reshaped the world of business. Entrepreneurial communities in the form of co-working spaces, accelerator programs and innovation centres have emerged to provide physical space for a growing number of self-employed workers to co-create and learn together. In all of these learning ecosystems, members benefit not only from the opportunity to learn from the group, but also to meaningfully contribute to the content and form of that community.

Schools have much to learn from these communities. They need to start valuing their students and teachers more as co-builders and sources of positive educational change. This will require a widespread change in mindset—and not only from those at the top. After decades of top-down reforms and mandated changes, students and teachers need to be shown that their creative input still matters.

MaRS Discovery District has taken exploratory steps to help catalyze this change. Since 2014, MaRS has been applying its experience as Canada's largest innovation hub to help schools more effectively foster and leverage the creativity of their students and teachers. Dubbed "Entrepreneurial Thinking and Learning" (ETL), this initiative has run a major pilot program with the Toronto District School Board (TDSB) and several smaller pilots with other boards and educational organizations across southern Ontario.

The ETL initiative revolves around a series of immersive training experiences in which K–12 teachers collaborate with students,

entrepreneurs and MaRS facilitators to identify and solve problems they see at their schools. Lasting between one to five days, these experiences equip students and teachers with the techniques and the mindsets to address such challenges. They learn to effectively build a startup team, identify and deconstruct valuable problems, conduct creative primary research, build and test prototypes, construct long-term strategies for executing solutions and persuasively communicate their ideas to others.

The first goal of ETL sessions is to empower teachers and students to effect important change at their school. In contrast to the large-scale, top-down mandates that they are used to, these sessions encourage participants to identify ways they can make a significant impact at their schools through localized, collaborative solutions. After each session, participants test the efficacy of their solutions at their schools and improve them based on the results of those tests. During the pilot with the TDSB, schools have used this process to resourcefully address problems, including the closure of a school cafeteria, declining school enrolment, negative perceptions of certain Toronto communities and mental wellness issues faced by students.

A second but equally important goal of these immersive training sessions is to provide teachers with specific, applicable entrepreneurial techniques that they can use to enrich their day-to-day activities and lesson plans. Following the training sessions, teachers work with their colleagues and MaRS facilitators to discuss and generalize the pedagogical applications of each of the entrepreneurial techniques learned. They then adapt these techniques to fit the unique needs and culture of their classroom. In past sessions, teachers have reworked common entrepreneurial techniques related to personal branding and networking into powerful tools for self-assessment and group formation. Startup tools related to customer validation have been hacked by teachers to help their students conduct more creative and authentic primary research. One high-school science teacher reimagined the business model canvas (a key startup tool) as a planning instrument to help her students consider the wider value their experiments could generate and to identify the additional support needed to maximize that value.

The approach taken by the ETL initiative is designed to provide a nimble, grassroots approach to educational reform that leverages the inherent creativity of the school community. The successes, failures and iterations experienced by participants in the ETL initiative are shared through both in-person sessions and, increasingly, through online platforms such as the still-evolving Entrepreneurial Thinking Toolkit (a MaRS resource).

It is far too early to determine whether or not the current incarnation of the ETL initiative will have a significant effect on the recalibration of the education system. However, there are positive indicators that it may. The TDSB requested ETL training for 25 of its schools in the 2015–2016 academic year, double the number of the 2014 pilot. The Toronto Catholic District School Board, which hired ETL facilitators for a half-day pilot workshop in 2014, has expressed serious interest in expanding this engagement to include multiple days of training for both students and teachers. Schools and educational organizations in Peel, York, Simcoe County, North Bay and London have also expressed interest in continuing or expanding upon small pilots run during the previous academic year.

Of course, as greater numbers of teachers and students participate in the ETL initiative, its form and content will evolve. This is because, unlike the GERMs that seek to repair a broken system, the ETL initiative is built to learn from the people who will make the system work.

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