



Canadians for 21st Century
Learning & Innovation

Shifting Minds 3.0

Redefining the Learning Landscape in Canada



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CEO
Academy

***Shifting Minds 3.0: Redefining the Learning Landscape in Canada** offers a vehicle for learning systems to reflect and inspire innovation that supports competency and resiliency in a global economy.*

*The CEO Academy is pleased to endorse **Shifting Minds 3.0: Redefining the Learning Landscape in Canada** to inspire a national conversation. We applaud the efforts of C21 Canada, and are proud to be contributing partners.*

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WE INVITE
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TO JOIN THE CONVERSATION!

FOREWORD

C21 Canada presents *Shifting Minds 3.0: Redefining the Learning Landscape in Canada*, in support of our vision for learning—a vision rooted in the shared aspirations of our partners—private and public firms, not-for-profit associations, and school districts. We see public education as the primary means of meeting the challenge of equipping all young people with the essential knowledge, skills, and personal qualities to thrive in a constantly changing world.

This paper argues that the well-tested methods of making change in education through incremental improvement are insufficient to the task of transforming schools into 21st century learning environments. We see the possibilities in many individual schools and classrooms—where personalization of the curriculum is the natural outgrowth of students' interests and aptitudes; where students communicate with subject experts worldwide; where classroom discipline and culture are established by students because their work is interesting and valued by themselves and those they connect to.

The responsibility for creating new learning environments cannot rest solely with teachers. Teaching is complex work constrained within curriculum, organizational structures, and accountability systems over which teachers have no direct control and often very little input. This paper focuses on the system in which teachers teach and students learn. It builds on the input of the members of C21 Canada's CEO Academy, who are engaged in transformative work within their school districts.

C21 Canada itself reflects ways of working that are essential to the modern world. Each publication is the result of collaboration—with experience, ideas, and feedback generously provided by C21 Canada Board Members, members of the C21 Canada CEO Academy, and the Secretariat. On behalf of these groups, we offer our appreciation to author Penny Milton and her consulting editor Joanne Wise.

We invite you to connect with us via Twitter, Facebook, or our website with your comments, blogs, and success stories, and look forward to collaborating with you in *Redefining the Canadian Learning Landscape*.

David Roberts
President and CEO

Robert Martellacci
Vice President and Co-Founder

C21 Canada: Canadians for 21st Century Learning and Innovation

Penny Milton has written widely on many aspects of social policy. She is a former, long-serving Chief Executive Officer of the Canadian Education Association (CEA) and former Deputy Minister of the Ontario Premier's Council on Health, Wellbeing and Social Justice. Penny holds a BSc (Hons) from the University of Nottingham, a Certificate in Technical Teaching from Letchworth College, UK, and a Masters in Management from McGill University.

Joanne Wise is experienced in all aspects of writing and editing for private sector, government and non-profit organizations.

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KEY MESSAGES

- Surface changes in education will not equip students for the 21st century: change is needed at the core of educational practice.
- Whole-system reform requires conditions that support educators in examining and reshaping the foundations on which their practice is built.
- A dual strategy of both improvement and innovation is required to maintain stability while enabling forward momentum.
- Leaders watch for the fine balance between the need for autonomy to innovate at the school level and the desire for systemic and sustainable improvement.
- Diversity is messy but critical in order to minimize ‘group think’ and maximize the possible solutions that will meet real-world needs.
- Insights from complexity theory can help leaders think outside the box of the traditional system to inspire and spread positive changes.
- Change is inevitable: transformation is possible.

ABOUT THIS PAPER

The members of C21 Canada and the CEO Academy share a common cause—the urgent need to transform public education so that all young Canadians will thrive in today’s complex, ever-changing world. The organization’s seminal report, *Shifting Minds 1.0: A 21st Century Vision of Public Education for Canada*, published in 2012, offers a vision for education, guiding principles for the vision, seven competencies (the 7 Cs) that all students need to succeed in the 21st century, and priorities for redesigning the public education system.¹ The 7 Cs are

- Creativity, innovation and entrepreneurship
- Critical thinking
- Collaboration
- Communication
- Character
- Culture and ethical citizenship
- Computer and digital technology

A recent follow-up, the *Shifting Minds 2.0 Index: An Assessment Metric for 21st Century Learning*, provides a continuum for the development and assessment of these competencies, and indicators of directional change at the district level.²

In individual classrooms and schools across Canada, innovative leaders, teachers, and students are working together to harness digital technologies and new pedagogies that equip students with the 7 Cs. It is the goal of C21 Canada for these successes to be scaled out so that all students can achieve the 7 Cs. For that to happen, the system as a whole must change.

The focus of this paper, **Shifting Minds 3.0: Redefining the Learning Landscape in Canada**, is systemic transformation. It explores the critical question facing school district leaders and government policy makers: How can innovative models of teaching that are emerging in some places become the new norm in all schools?

This paper proposes a shift away from hierarchical policy-driven systems toward networks of strong, responsive schools, with educators collaborating continuously and sharing knowledge both horizontally and vertically. In these transformed systems, leaders at the top empower leadership at all levels, resulting in schools and classrooms that are holistic and adaptive. The dual strategies of school improvement and innovation work together to hold the system in balance so that all parts of the whole can adapt without spinning out of control.

¹ C21 Canada, *Shifting Minds 1.0: A 21st Century Vision of Public Education for Canada* (C21 Canada, 2012), c21canada.org/wp-content/uploads/2012/11/Shifting-Minds-Revised.pdf.

² C21 Canada, *Shifting Minds 2.0 Index: An Assessment Metric for 21st Century Learning* (C21 Canada, 2014), c21canada.org/wp-content/uploads/2015/04/Shifting-Minds-LEARNING-INDEX-Sept-29.pdf.

THE CHALLENGE

Based on international benchmarks of student achievement in mathematics, reading, and science, Canada has one of the best public education systems in the world. But are our students equipped with the resilience, know-how, and persistence required to navigate the world in which they find themselves? Not according to many students³ and future employers.⁴

The problems facing our kids are global and complex. Their everyday experiences in school do not align with the world today—a world characterized by diversity, rapid change, and ever-more-sophisticated technologies.

Surface changes in education will not equip students for the 21st century. Change is needed at the core of educational practice.⁵

The **traditional view** of educational practice is that teachers lead and students follow; curriculum and course outlines are prescribed; teachers develop lesson plans emphasizing direct instruction; text books are a primary resource; and successful students replicate what they are taught.

Surface changes in education will not equip students for the 21st century: change is needed at the core of educational practice.

The **transformative view** is that learning is a social process, with students and teachers working in partnership with each other and with experts beyond school, supported by digital technologies. In the transformative view, collaboration, creativity, innovation, entrepreneurial know-how, and ethical citizenship infuse teaching and learning. Students and teachers co-design their work. The learning environment, which extends beyond the classroom, is purposefully designed for students to think, research, analyze, develop and improve their ideas, and demonstrate deep understanding through the work they produce.

The potential of the transformative view can be seen in some innovative schools and classrooms. Their curriculum, assessment practices, resources, tools, and connections to the community—both locally and virtually—are designed to foster deep learning. Their teachers activate students' curiosity and creativity through a focus on questions that matter to students. In these schools, teachers continually hone their skills and build their knowledge by designing their work together.

The challenge for school district leaders is to extend the transformation to all classrooms and schools. Whole-system reform requires conditions that support educators in examining and reshaping the foundations on which their practice is built (leadership and management, as well as teaching). The *Shifting Minds Index* envisions these as five core elements of public education: curriculum, pedagogy, learning, environment, governance, and citizen engagement.⁶

Some experts maintain that the way forward is through school improvement—an expansion of teaching capacity across all schools. Others call for strategic innovation—a reinvention of schooling. (See Figure 1.) School improvement planning is founded on best practices that are proven to have worked in the current system. Innovation looks for the next practices. Because education is complex and the stakes for students are high, a dual strategy of both improvement and innovation can offer a reliable way to maintain stability while enabling forward momentum.

³ Jodene Dunleavy, Douglas Willms, Penny Milton, and Sharon Friesen, *What did you do in school today? Research Series Paper 1* (Canadian Education Association, September 2012), cea-ace.ca/sites/cea-ace.ca/files/cea-2012-wdydist-report-1.pdf.

⁴ World Economic Forum, *New Vision for Education: Unlocking the Potential of Technology* (World Economic Forum, 2015), weforum.org/reports/new-vision-education-unlocking-potential-technology.

⁵ Richard Elmore, "Getting to Scale with Good Educational Practice," *Harvard Educational Review*, Vol. 66 No. 1, Spring 1996, p. 2. Available at ed-share.educ.msu.edu/scan/te/danagnos/te9206b.pdf.

⁶ C21 Canada, *Shifting Minds 2.0 Index: An Assessment Metric for 21st Century Learning* (C21 Canada, 2014), c21canada.org/wp-content/uploads/2015/04/Shifting-Minds-LEARNING-INDEX-Sept-29.pdf.

Figure 1. Comparing improvement planning and strategic innovation⁷

| Improvement Planning | Strategic Innovation |
|---|--|
| Analytic | Creative |
| Focus on performance indicators | Focus on new insights |
| Internally focused (inside-out) | Externally focused (outside-in) |
| Logical, linear | Iterative, heuristic (discovering by doing) |
| Strategy for today <i>forecasted</i> to tomorrow | Strategy for tomorrow <i>back-casted</i> to today |
| Expand existing model | Alternative business models |
| Assumes future looks like today | Assumes future is dynamic |
| Follows rules and traditions | Breaks rules |

LEADING THE TRANSFORMATION

The authors of the McKinsey Company Report, *How the World's Most Improved Systems Keep Getting Better*, distinguish several system stages in improvement journeys: from poor to fair; from fair to good; from good to great; and from great to excellent.⁸ According to international benchmarks, Canada's school systems are on improvement journeys that are moving them, at least, from good to great. Those working toward 21st century competencies for all students are using the McKinsey Report strategies to get from great to excellence on currently available benchmarks. The strategies include

- cultivating peer-led learning for teachers and principals
- creating additional support mechanisms for professionals
- sponsoring experimentation and innovation at the system level, across all schools

Figure 2 highlights some of the ways system leaders are putting these three strategies (plus visioning) into practice. All of the tactics support system improvement; some can also be used to promote innovation.⁹

⁷ Adapted from Christian Bason, *Leading Public Sector Innovation: Co-creating for a Better Society* (University of Bristol, UK: The Policy Press, 2010).

⁸ Mona Mourshed, Chinezi Chijioko, and Michael Barber, *How the World's Most Improved Systems Keep Getting Better* (McKinsey and Company, November 2010), mckinseysociety.com/downloads/reports/Education/How-the-Worlds-Most-Improved-School-Systems-Keep-Getting-Better_Download-version_Final.pdf.

⁹ These strategies and tactics were collected for this paper in January 2015, through interviews with a sample of senior leaders of school districts from six provinces—all members of C21 Canada's CEO Academy.

Figure 2: Change strategies in use by system leaders in Canada

| Strategy | Tactics | Results |
|---|---|---|
| Co-create a vision | <p>Engage all stakeholders in creating a vision for all students, using affirmative processes (e.g., Appreciative Inquiry, Future Search).</p> <p>Use social media to reflect ideas that system and school leaders are thinking about.</p> | <ul style="list-style-type: none"> • Common language across the system • Persistence of vision over cycles of change • Commitment to vision across the system |
| Cultivate peer-led learning for teachers and principals | <p>Collaborate in school, across several schools, and with other districts.</p> <p>Model inquiry as a mode of professional learning.</p> | <ul style="list-style-type: none"> • Professionals encounter a diversity of ideas and perspectives • Learning happens in specific context of daily work • Teachers are supported to take risks in their practice |
| Create support mechanisms for professionals | <p>Provide technical support for classroom technologies.</p> <p>Put high-speed Wi-Fi in all schools.</p> <p>Implement a student information system that reduces administrative burden and generates student profile data for classrooms, schools, and the system.</p> <p>Adapt or create structures and processes for deep, exploratory conversations about ideas and the actions that follow among senior leaders.</p> | <ul style="list-style-type: none"> • Increase in student independence and collaboration with experts • Effective personalization of curriculum • Reduction in teacher time on administrative tasks • Shared purpose and accountability for system goals among senior teams, with lateral and vertical accountability for all schools. |
| Sponsor system experimentation/innovation across schools | <p>Establish an innovation fund. Target system and school-level expertise in innovation to activate and aid innovative projects.</p> <p>Collect and spread innovative ideas.</p> <p>Reduce fear of failure.</p> | <ul style="list-style-type: none"> • Increase in innovation capacity • New models of teaching and learning • Ideas and examples available to all schools • Increase in confidence in applying new ideas |

School districts using these strategies report higher energy levels, greater excitement, and new ideas being put into action by students and teachers. New ways to describe and account for the performance of students are being explored. Stories of success are shared by social media and are collected to provide examples that illustrate the new ways of working.

The power of conversation—to change or modify commonly held beliefs, to generate new actions, and to hold participants accountable for the actions they pursue—cuts across all strategies designed to change the way things are done in school.

School districts pursuing a change agenda along an improvement and innovation trajectory start where the opportunity presents itself because there is not a single (or simple) approach to create innovative schools across a whole system. These are some examples of successful starting points:

A dual strategy of both improvement and innovation is required to maintain stability while enabling forward momentum.

- Determine and then increase the levels of intellectual engagement¹⁰ across all schools.
- Establish creativity as a cross-curricular goal in a strategic plan.
- Introduce or expand blended online and school-based programs to provide choice in all high schools.
- Exploit provincial initiatives to support district innovations (e.g., new funding or designs for technology, curriculum, assessment).

Leaders watch for the fine balance between the need for autonomy to innovate at the school level and the desire for systemic and sustainable improvement. The choice of strategies and starting points depends on local contexts that include the following:

- the provincial policy framework
- the size of the jurisdiction (“we’re neither too large nor too small”)
- the stage of development of the district’s schools
- system planning processes
- the district’s or leader’s vision for learning

¹⁰ **Intellectual engagement** is defined as a serious emotional and cognitive investment in learning. It occurs when students work on real problems that deeply interest them. See Jodene Dunleavy and Penny Milton, *What did you do in school today? Exploring the Concept of Student Engagement and its Implications for Teaching and Learning in Canada* (Canadian Education Association, 2009), cea-ace.ca/sites/cea-ace.ca/files/cea-2009-wdydist-concept.pdf.

SCALING OUT AND SCALING UP

Creating the conditions for local innovations is relatively easy. Sustaining the innovations over time, and scaling them out to other schools, is much harder. Schools may, for example, get better at using technologies and may for limited subjects and time periods support interdisciplinary studies or facilitate collaborative projects. But without a disciplined approach to transformation, these innovations will not likely add up to a new way to do school every day for all students in every class.

Scaling out means spreading a promising innovation to other schools.

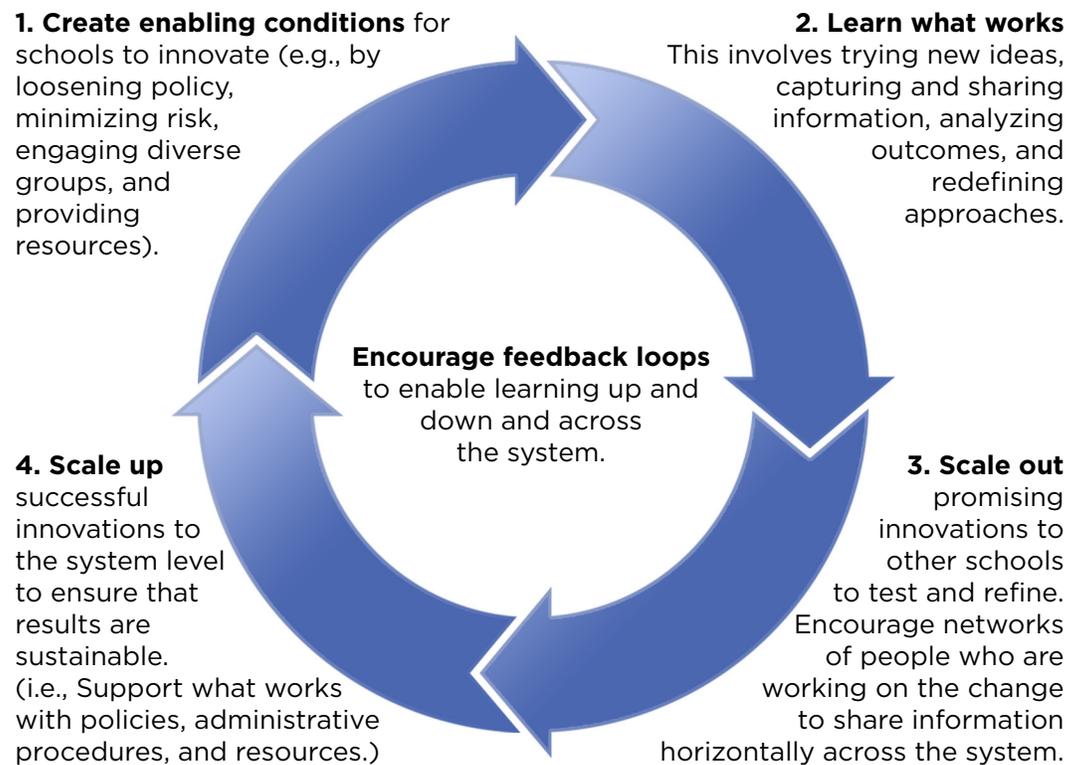
Scaling up means changing the whole system—for example, by altering the way resources are allocated or by changing policies or procedures to sustain innovations.

Whole-system reform requires conditions that support educators in examining and reshaping the foundations on which their practice is built.

Educational practice includes the tight interconnectivity of the components that make up a school. This interconnectivity keeps the current model intact. Some components offer more leverage for redesign than others, especially in the early grades. The arrangements for secondary education—including credit systems, academic levels, postsecondary trajectories, discipline-based curricula, school size, class scheduling, and student transportation needs—all limit the possibility of whole-system change. An innovation in any one component—even the most significant, such as curriculum or assessment—lacks the power to modify the others. And so the innovation tends to be short lived. There is pressure even for successful innovations to revert to old ways that fit within the larger system.

Figure 3 offers a way to counteract that pressure, using a disciplined approach that emphasizes conversation and shared learning at each step.

Figure 3. A disciplined approach to scaling out and scaling up



Overload is often cited as another barrier to innovation in education. Overburdened leaders and frontline educators say there are too many curriculum expectations; too many initiatives; too complex or diverse student populations; and too many demands for collaboration with other authorities, including health, social services, child welfare, emergency services, justice, and corrections. The argument is made that society is expecting schools to do too much. The stresses of complex social problems are compounded by the lack of interconnectivity in the proposed solutions.

There is no doubt that innovation is disruptive. But the disruption can uncover the policy or practice that needs to change to enable an innovation to flourish. Social innovation concepts and complexity theories can help to frame the problems and point toward workable solutions. Frances Westley, a leading Canadian scholar, defines social innovation this way:

“**Social innovation** is an initiative, product, process or program that profoundly changes the basic routines, resource, and authority flows or beliefs of any social system. Successful social innovations have durability and broad impact.”¹¹

Sean Snyder offers this mindset drawn from complexity theory:¹²

- Foster a collaborative environment throughout the system by actively creating opportunities for working outside usual roles.
- Design ways for collaboration and interaction to be continuous.
- Make reforms iterative, experimental, and flexible.
- Adopt a “non-deficit” approach to reform by focusing on *what if* rather than *what’s wrong*.
- Focus on a few key areas and pursue them collaboratively with diverse groups
- Engage and energize teachers through collaborative research and longer-term peer-to-peer mentoring.
- Take on board the developments and management structures of other sectors and industries by asking how they could work in education.

GOVERNANCE MODELS AND MANAGEMENT APPROACHES

Governance determines who has power, who makes decisions, how other players make their voices heard, and how accounts are rendered.¹³ In Canada, the provinces and territories have authority for education (except for schools on First Nations reserves). Elected school boards oversee the education system for a district, representing the interests of their constituents within the legal framework of the province or territory.

The policy frameworks under which school districts operate may influence the scale of innovation that a district undertakes. Dialogue-based consultation processes, cross-curricular competencies in curriculum documents, prototyping, and new

¹¹ Frances Westley, quoted in “Introduction to Social Innovation” at the Social Innovation Generation (SiG) Knowledge Hub (emphasis added), sigknowledgehub.com/2012/01/01/introduction-to-social-innovation.

¹² Adapted from Sean Snyder, *The Simple, the Complicated and the Complex: Educational Reform through the Lens of Complexity Theory*, (Paper prepared for the Governing Complex Education Systems project, Directorate for Education and Skills, Organization for Economic Co-operation and Development, November 2013), oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=EDU/CERI/CD/RD%282013%2910&docLanguage=En.

¹³ Institute on Governance, Definition of governance, iog.ca/defining-governance/.

funding schemes are some of the ways different jurisdictions encourage district and school-level innovation.

Provincial approaches seem to fall into three distinct policy frameworks:

- **Central direction** involves stakeholders in an iterative relationship of policy design and local implementation. This approach has raised academic achievement across the majority of schools. Success depends on feedback loops, with leaders and practitioners learning from and adjusting strategies as needed. Central direction can promote improvement in schools, but it limits innovation.
- **Non-intervention approaches** allow school districts to respond to local contexts without the pressure of specific school improvement policies. In these cases, the central authority encourages rather than mandates the change. Some districts have been able to innovate under these conditions; others less so.
- **Enabling or permissive approaches** encourage or support experimentation and innovation at the district and school levels. Some may enable innovation by the simple absence of a prescribed regulatory framework; others may develop specific innovations—for example, in curriculum or assessment. The advantage of this approach is that it allows the province to learn and try out alternative policy designs before attempting to replace one significant policy with another.

No jurisdiction operates totally within one framework. For example, a province that favours central direction might waive a specific policy to enable innovation in a school district, just as a school district might waive a policy to enable innovation in specific schools. Or collaboration and experimentation might be built into the process of developing new policies.

Diversity is messy but critical in order to minimize 'group think' and maximize the possible solutions that will meet real-world needs.

System leaders need to involve their school boards in conversations and decisions about transformation. Attempts to limit the involvement of school board members to a formal policy governance role weaken the public education system. The values and interests of stakeholders—including families, students, community leaders, employers, unions and professional associations, and social and health service providers—are often divergent. Diversity is messy, but essential. Diverse experiences and perspectives help to minimize the human tendency toward 'group think' and to maximize the possible solutions. Digging into those differences might reveal promising ideas and create a climate for ongoing collaboration, including resource sharing.

The concept of complex adaptive systems can help leaders to recognize the power of diverse relationships. In a complex system:¹⁴

- Order flows from interactions, not from central control.
- When interactions among agents are enhanced, adaptability and creativity are also enhanced.
- Small changes may produce big effects.

Traditional and complex adaptive systems offer different ways of thinking about relationships and about how things happen within an organization. (See Figure 4.)

Figure 4. Comparison of traditional and complex adaptive systems

| | Traditional system | Complex adaptive system |
|---------------------|--|---|
| Design | Assumes a direct relationship between inputs and effects. Sometimes called a determined system. Roles and reporting relationships are predetermined. | Assumes the system is the whole collection of agents in various relationships with others. Novel, creative, and emergent outcomes arise within relationships. |
| Advantage | Lines of authority, accountability, and influence are clear. Provides apparent stability and supports top down implementation plans. Manages the interests of external stakeholders by consultation. | Acknowledges that cause and effects within education systems are rarely direct. A variety of solutions or responses will emerge, from which the system learns and adjusts. Information flows through relationships among agents. |
| Disadvantage | Does not recognize the complexity of influences and actors that result in learning. Limits the variety of solutions for complex problems. Risk avoidance is common and risk takers may be unwilling to share what they've learned. | Recognizing the autonomy and interdependence of people throughout a system can be difficult for managers comfortable in hierarchical relationships. Leaders need to embrace the ambiguity of relating to the system in two ways: through relationships and within a determined structure. |

Even in systems with firm central control, relationships are complex. Within the complexity there is potential to inspire innovations and promote positive changes. The key lies in identifying change agents by their influence rather than their formal position.

System leaders often know who the influential change agents in their networks are—specific teachers, principals, maybe a senior manager or a particular group of people working on a project or an innovative idea. Researchers who have studied complex adaptive systems offer advice for identifying and working with those who are most influential in scaling out positive changes:¹⁵

- Focus on people who are central in the organization’s informal networks, regardless of their position in the formal hierarchy.
- Look for the people who bridge disconnected groups.
- Beware of the obvious resisters and be mindful of those who are ambivalent about a change (the fence-sitters). Work with the fence-sitters, both to build cooperation and to improve the changes.

Innovators and change agents can be found in any organization. When leaders are committed to innovation and offer an open invitation to participate, the change agents will often identify themselves.

¹⁵ Julie Battilana and Tiziana Casciaro, “The Network Secrets of Great Change Agents.” *Harvard Business Review*, July-August 2013, Hbr.org/2013/07/the-network-secrets-of-great-change-agents

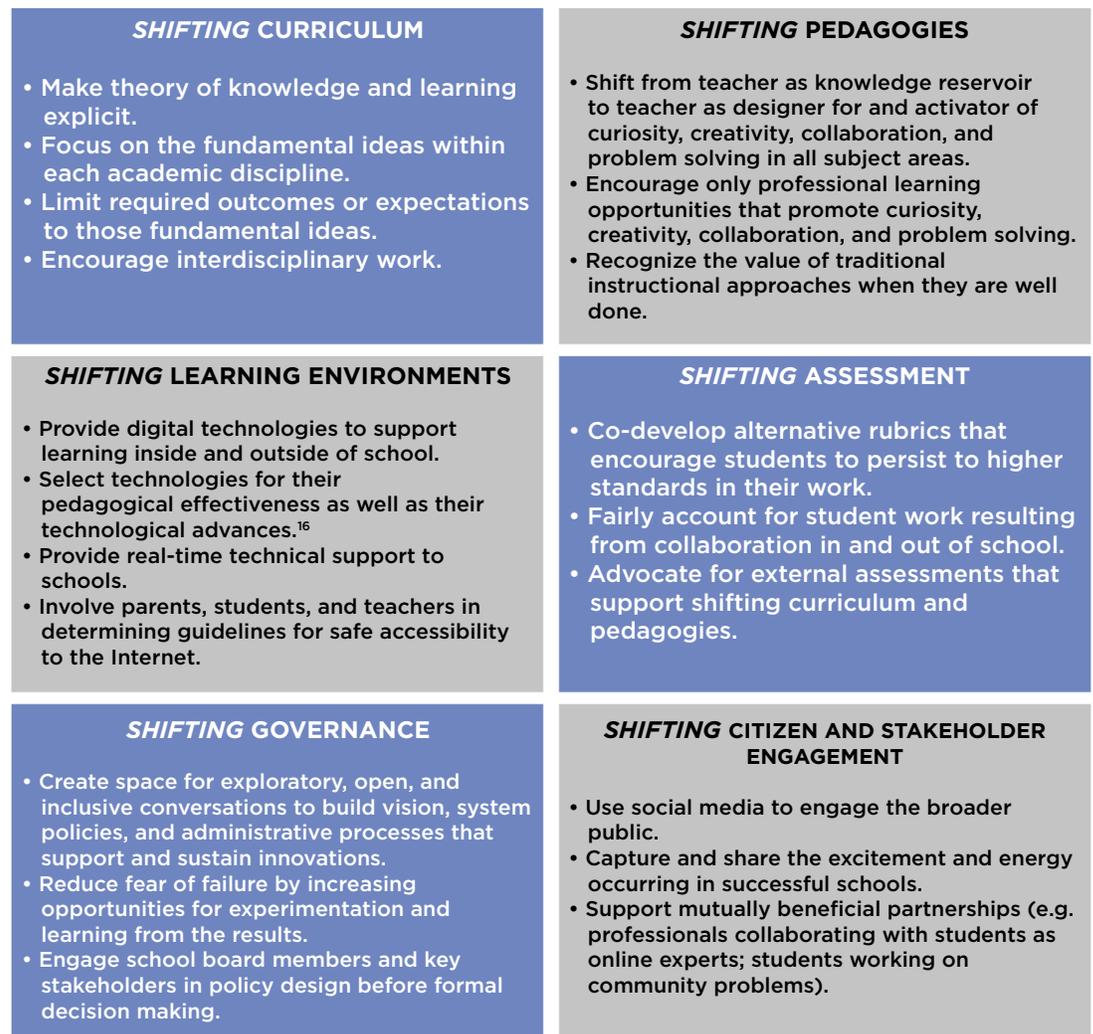
GOING FORWARD

The demands for schools to do more continue to accelerate as society faces new challenges—including economic and technological shifts, and complex social issues, such as cyberbullying, sexual violence, and child safety. Whether new policies and laws are part of the solution is always debatable; but new learning is unquestionably needed—for everyone at all levels of the education system, not only for students.

If doing more in education is not a realistic choice, then doing differently must be.

If doing more in education is not a realistic choice, then doing differently must be. The public education system will not simplify society, but it can do a much better job of meeting the learning and development needs of today's children and youth. For change to happen, the system as a whole must become more collaborative and strategically experimental. Figure 5 identifies six interconnected parts of the whole, and lists some ways each part can promote whole-system transformation.

Figure 5. Shifting the system drivers



Change is inevitable; transformation is possible. System leaders create the conditions for transformation by encouraging leadership at all levels, imbued with the very attributes we are aiming to develop in young people—creativity, inquiry, collaboration, calculated risk taking, reasoned problem solving, and the capacity to learn from experience and face the next challenge.

¹⁶ Michael Fullan and Katelyn Donnelly, *Alive in the Swamp: Assessing Digital Innovations in Education* (Nesta, UK, July 2013), www.nesta.org.uk/sites/default/files/alive_in_the_swamp.pdf

USEFUL RESOURCES



FROM C21 CANADA

A Parent's Guide to 21st Century Learning (website)

c21parentguide.wordpress.com

The character traits, skills, and knowledge required today call for an education very different from what many adults experienced in school. This website includes resources to help parents see the difference, advocate for their children, and build confidence in new ways to do school.

Shifting Minds: A 21st Century Vision of Public Education for Canada

c21canada.org/wp-content/uploads/2012/11/Shifting-Minds-Revised.pdf

This report, published by C21 Canada in 2012, offers a vision for education, guiding principles for the vision, seven competencies (the 7 Cs) that all students need to succeed in the 21st century, and priorities for redesigning the public education system.

Shifting Minds Index: An Assessment Matrix for 21st Century Learning

c21canada.org/wp-content/uploads/2015/04/Shifting-Minds-LEARNING-INDEX-Sept-29.pdf

The Shifting Minds Index, published by C21 Canada in 2014, provides a set of common criteria and indicators for organizations to measure progress toward 21st century learning competencies. The index describes system design elements in a rubric encompassing system level outcomes for curriculum, pedagogies, governance, and citizen engagement.



VISIONS FOR EDUCATION

New Vision for Education: Unlocking the Potential of Technology

World Economic Forum, in collaboration with the Boston Consulting Group, (Geneva, Switzerland: World Economic Forum, 2015).

weforum.org/reports/new-vision-education-unlocking-potential-technology

Equinox Blueprint: Learning 2030

Michael Brooks and Bob Holmes. (Waterloo: Waterloo Global Science Initiative, 2014).

wgisi.org/equinox-summit/equinox-summit-learning-2030



SYSTEM IMPROVEMENT FOR 21ST CENTURY LEARNING

A Rich Seam: How New Pedagogies Find Deep Learning

Michael Fullan and Maria Langworthy. (London: Pearson, 2014).

michaelfullan.ca/wp-content/uploads/2014/01/3897.Rich_Seam_web.pdf



INNOVATION RESOURCES

Alive in the Swamp: Assessing Digital Innovations in Education

Michael Fullan and Katelyn Donnelly. (London: Nesta, 2013).

nesta.org.uk/sites/default/files/alive_in_the_swamp.pdf

Social Innovation Generation (SiG)

Social Innovation Generation (SiG) is a national collaboration addressing Canada's social and ecological challenges by creating a culture of continuous social innovation. These are the founding partners:

- University of Waterloo (SiG@Waterloo), **sig.uwaterloo.ca**
- J.W. McConnell Family Foundation (SiG@McConnell)
- MaRS Discovery District (SiG@MaRS)
- PLAN Institute (SiG@PLANInstitute)

The SiG Knowledge Hub was launched in 2013 at **sigknowledgehub.com**.



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Karen Yamada

Ambassador - C21 Canada

C21 Canada is a national, not for profit organization that advocates for 21st Century models of learning in education. The goal of C21 Canada is to witness an accelerated pace of 21st competencies, instructional practices, and digital resources and services being integrated into Canada's learning systems. C21 Canada is a unique blend of national education associations and knowledge sector businesses united in their belief that 21st Century models of learning must be adopted in public education on an urgent basis to position Canadians for economic, social and personal success in the high skills, knowledge and innovation-based economy.

C21 Canada and its members provide collaborative vision and support to help Canadian education organizations enhance learning in the foundation areas of literacy, numeracy and science while infusing 21st Century skills (creative problem solving, critical thinking, collaboration, communication, personal development, global citizenship and digital competency) into content, and instructional and assessment practices.



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