

REDESIGNEDed

# REDESIGNED

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 Lorraine Randell, 2017

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## ABSTRACT

The current public education system in Ontario is seen as successful, having raised standardized test scores and improved teacher training over the past 10 years. These measures of success, however, don't reflect the changes that will need to be adopted to support learning in the future. Learners are missing out on critical experiences, information and interventions that will better enable them to succeed in the future, because the system is highly resistant to change.

Using a poststructural foresight methodology known as Causal Layered Analysis combined with the temporal change model of Three Horizons, this research shows that there are deep myth and metaphor level changes required in the system in order to ensure the future success of learners.

Opportunities for innovation emerge in three areas: including student self-reporting of well-being into quality and learning assessment, developing co-operative, community-owned learning spaces for educational and social development, and infusing dialogic design methods and design-led practices into the facilitation of learning. Finally, a theory of change is proposed over a long term, recognizing the resistance to change in the system and introducing the quality of "bounded temporality", the idea that we may not be able to make the best decisions for the future because we are limited by our blindness to time-based values and orthodoxies that shape what we believe to be obvious.

**For Kie, Sophie and Maggie.**

My highly stable, adaptive systems.

This wouldn't have been possible without all of you.

**For Gord and Dad.**

Critical and creative. I think of you both every single day.

**For Mom.**

For leading the way of self driven learning, welcoming critical thinking, and enduring boundless, messy, and chaotic creativity.

**For Graham.**

My creative co-conspirator.

**For Felix, Leah, Frances, Mikka, and Ren.**

With love

**and**

**For all of the weirdos in the world who think  
that they're the only ones.**

**With many thanks to my principal advisor,  
Dr. Peter Jones, for infinite wisdom, guidance  
and patience.**

**And to secondary advisor Patricia Kambitsch,  
for the ongoing inspiration to keep drawing**

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*Each of us is born into this world full of wonder, curiosity, creativity, and dreams. From their first days of life, children begin to develop their capacity to explore and make sense of their surroundings, to bond with those who care for them, and to experience the joy of being alive. The way they experience the world becomes their “original research” and the basis for the conclusions they draw.*

Allison Zmuda

## INTRODUCTION

Education makes a wide impact on society, developing engaged citizens, providing opportunities for learning & building skills for future work, introducing alternative interests, and socializing students. Education is also a key factor in moving out of poverty by providing opportunities for upward social mobility in a population.

“Publicly funded education has the potential to overcome intergenerational cycles of poverty and class. Publicly funded schools—with adequate resources, broad goals, and a mission to give every child a chance for success—can change children’s lives and provide them with the skills, attributes and competencies they need for prosperous, engaged, and happy futures.”

(People for Education, 2013, p.3)

Education is often focused on building skills for engaged citizens to prosper, but how can we prepare kids for a future we don’t understand? With the increasing speed of change, using foresight to understand what the future(s) may look like is crucial. With impactful social and technological change on the horizon, education must be adapted to shape learning to future social and economic needs, and to develop positive well-being for today’s learners.

“The world is becoming more interconnected and complex, and will require multifaceted responses. The response of education to these challenges will play a singular and active role in shaping the future.”

(Scott, 2015, p.3)

The education system in Ontario is a strong and resilient system that resists change. It has been relatively easy for this system to resist change because it has been seen as highly successful – delivering marked improvement since 2003 in academic success. But academic success does not necessarily correlate with developing an engaged citizenship who seek sustainability for the future. This leads to the key question of this research project:

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*How might highly stable educational systems transform over long horizons to support the changing needs of Ontario's learners?*

- *How will the education system need to adapt to provide a relevant, engaging, substantive experience to kids and provide value to society?*
  - *How can we use this system as a leverage point to promote positive social change?*
  - *How can we adapt the current system to be prepared for the future? What gaps are there? What needs to change?*
  - *How might understanding future needs change current social and educational policy?*
-

As a student of the Strategic Foresight and Innovation program, I am a socially minded systems level thinker with a design background. My focus of work and research in the program included large scale systems change, the processes of disruption, the value of creativity & design for innovation, and direct experience of the strength of work that comes from true collaboration.

My experience working at the policy level of a large Ontario public school board, combined with the experience of supporting my children while in the process of their public education (currently in grades 1 and 4) gave me insight into some systemic norms of Ontario public education that seemed to counter the information that I had learned in my studies.

Through my studies, I have come to understand that creativity, critical thinking and systems thinking are crucial capabilities for future success. I believe this is due to the changing nature of work, the implications of increasing technological integration and increased need for global sustainability and an increased focus on the importance of personal well-being.

“the ability to think creatively and innovatively is a core component of 21st century skills; critical to learning, life, and career skills, as well as effective communication and collaboration”

(Bellanca, J. A., & Brandt, R. S. (2010)

My work in futures led me to recognize incongruencies between the operational values and practices of the current Ontario public educational system and the values and practices that may be required for social, economic and personal success in the possible, plausible and probable futures.

This led me to ask the following questions:

- How will we know how and when the system needs to change if it continues to succeed within the current era's measures of merit?
- If the future demands new skills and knowledge from its citizens, will a highly regimented, institutionalized system be capable of changing?

The education system is at a tension point where change must happen but where the desire for change is extremely low, the vision for the future is cloudy and action plans for the future assume the maintenance of a bulky and costly infrastructure system as status quo. This is a successful system that seems to be riding its current views of success into a future it isn't prepared for, and doesn't understand.

“The labour market is changing quickly owing to constant innovation, and it is very difficult to avoid the impression that there is an ever yawning gap between its demands and the training provided by schools. Economy, trade, finance, communication and migration have developed on a global scale and many of the current and future challenges have spilled over national borders, fuelling the growing debate on conflicting educational visions of the type of balance that must struck between local and universal identities, knowledge and values.”  
(Scott, 2015, p.2)

The system doesn't only impact economic futures, however. Formal education is a primary vehicle for social norms, civic engagement and for supporting personal development. Education influences and drives society and helps us to see the possibilities for our futures.

Change in the Ontario public education system will require foresight and understanding of future possible social, economic and environmental contexts that will shape the realities of the lives of learners. We need to know the possible inflection points for change, change drivers and weak signals that are appearing in education today that might yield these answers.

*This work is meant to inform policy makers, educators, parents and students about how we might use foresight and design to support future success. I hope to introduce the power of foresight practice, systems design and creative thinking as processes that provide an intentional way to create educational policy, and that work to develop and support system changes for success in the future.*

Don't impose on me what you know,  
I want to explore the unknown  
and be the source of my own discoveries.  
Let the known be my liberation, not my slavery.  
The world of your truth can be my limitation;  
your wisdom my negation.  
Don't instruct me; let's walk together.  
Let my riches begin where yours end.  
Show me so that I can stand  
on your shoulders.  
Reveal yourself so that I can be  
something different.  
You believe that every human being  
can love and create.  
I understand, then, your fear  
when I ask you to live according to your wisdom.  
You will not know who I am by listening to yourself.  
Don't instruct me; let me be.  
Your failure is that I be identical to you.

[The Student's Prayer, by Humberto Maturana Romesin](#)

***“When you  
adopt a tool,  
you adopt  
the inherent  
management  
system of that  
tool.”***

Clay Shirky



## HOW DID WE GET HERE?

**Formalized public education in Ontario has roots that reach to a time before the Dominion of Canada.**

Early towns and villages of Upper Canada offered unregulated and inconsistent schooling organized by the settlers. The first lieutenant-governor of Upper Canada, John Graves Simcoe, (who was educated in the UK at Eton College and Oxford University), understood the value of organized, formal education to the new colony. He began to advocate for a provincial University and wrote the first Public Schools Act in 1807. Simcoe's writing about his motivation for the establishment of a uniquely Canadian educational institution reflects both the ideals that shaped the beginning of the province of Ontario and the values which eventually shaped our public education system.

“Such an institution, wrote Simcoe, “would give a tone of principle and manners that would be of infinite support to government.”(Friedland, 2013) Of perhaps more importance, it would also help prevent students from picking up subversive ideas in the United States, where, “owing to the cheapness of education ... the gentlemen of Upper Canada will send their children.”(Friedland, 2013) Simcoe had fought against the Americans in the Revolutionary War and obviously had no wish to lose the rest of British North America as well.

“I have no idea that a University will be established,” Simcoe wrote to the Anglican bishop of Quebec in 1796, “though I am daily confirmed in its necessity.”(Friedland, 2013) Such an institution, he felt, would “strengthen

the union with Great Britain and preserve a lasting obedience to His Majesty's authority." He also stated that a university would "have a great influence in civilising the Indians," and then added, "and what is of more importance, those who corrupt them."(Friedland, 2013)

Geographic proximity to the recently revolutionary Americans (and negative feelings from a Canadian ruling class who had fought against them in the war) meant that common systems of education and religion, promoting English values and loyalty to the Monarchy and the Church, were seen as crucial to the success of the colony. Education in Upper Canada was formed as a system of rebuking American-style democracy, and ensuring loyalty to the Queen and Church of England.

In 1844, Rev. Egerton Ryerson was appointed as the Assistant Superintendent of the province. He was directed by the then Lieutenant Governor to travel to Europe to oversee education practices. Ryerson was impressed with the Prussian educational model, and sought to incorporate the methods of organizational standardization that worked to provide social order as well as divide formalized education into separate age-based units that worked together to provide a career trajectory for citizens. (It must be noted that the appeal of the Prussian model included its historical ability to create good soldiers for the country - which at a time of precarious nationhood in Canada's history would have been a valuable asset in protecting the colony.) Ryerson's 1845 report on his findings from the journey led to the beginnings of the organization of the public school system as we know it today.

“By Education, I mean not the mere acquisition of What certain arts, or of certain branches of knowledge, but Education that instruction and discipline which qualify and dispose the subjects of it for their appropriate duties and employments of life, as Christians, as persons of business, and also as members of the civil community in which they live.”  
(Ryerson, 1846)

In 1871 the School Act legislated free, compulsory education, standardized local governance, aligned teaching and hiring practices and installed a system of oversight by county inspectors. This system, created by an appointed legislature of loyalists to the Crown, was a way to promote loyalty, security and economic growth for nation building, and a way to create manageable social order within the context of a large natural land mass that limited timely communication.

***“ When their formal schooling begins, their natural tendencies to learn are largely supplanted by the routines developed to organize their play and build basic skills. These routines train students to follow directions, be respectful of their peers, make predictions, and accumulate knowledge. These routines also, however, send a quiet message that learning is a predictable process managed by the teacher. Students quickly figure out that there are rules to the classroom, that kids are sorted based on ability, that there are right answers and wrong answers, and that there are ways to make their teachers happy. ”***

Allison Zmuda

## WHAT'S HAPPENING NOW?

“Vibrant communities and a prosperous society are built on the foundation of a strong education system. Today, Ontario’s publicly funded education system – acknowledged as one of the best in the world – partners with parents, guardians and communities to develop graduates who are personally successful, economically productive and actively engaged citizens.” (Ontario Ministry of Education, 2014)

Currently, Ontario’s education system is being lauded for having successfully improved over time to become one of the best in the world. The 2010 McKinsey report, “How the World’s Most Improved School Systems Keep Getting Better” rates Ontario’s public education system as 4th in a list of international education systems.

### How did we get there?

“We are at once the heirs of the past and the stewards of the future, and while we take pride in our inheritance, we can ill afford to bury our talents in the soils of satisfaction.” (Hall-Dennis, 1968)

The period from the early 1900’s to the mid-century marked a time of massive infrastructure growth and increased standardization of methods and materials for Ontario public schools. Over this time, minimal changes were made to the structures that were in place. This led to a movement toward change and more progressive education practices in the 1960’s.

## A Vision for the Future

In the 1960's the public increasingly recognized that the education system as we had built it was no longer a good fit for the increasing speed of life, nor did it reflect the social, technological and economic changes of the time. Ontario's premier William Davis commissioned a report to determine how to improve the education system and better prepare students for a future they weren't sure about. The Hall-Dennis Report responded to this request with a groundbreaking report that began:

“The underlying aim of education is to further man's unending search for truth. Once he possesses the means to truth, all else is within his grasp. Wisdom and understanding, sensitivity, compassion, and responsibility, as well as intellectual honesty and personal integrity, will be his guides in adolescence and his companions in maturity.”

(Hall-Dennis, 1968)

Hall-Dennis sought to correct the mechanistic methods that Ontario's public education had adopted and responded with a progressive reply. Lloyd Dennis later wrote in his memoir about how the report was influenced in part by Marshall McLuhan, who spoke to the committee about the task ahead of them.

“Your education system is dead meat,” he (Marshall McLuhan) begins. Then he argues, convincingly, that the whole approach to organized learning belongs to another century. Children of today are in a new electronic age. They think differently, learn differently and respond differently because they are tactile people, aural people, like tribal man before the age of print. They learn by pattern recognition, but they go to school and are confronted by print-minded teachers. Everything is broken down in packages called subjects – “it’s like trying to study a flood by counting the trees going by, it doesn’t make sense to them. If you think you have a drop-out rate now, you should think of it in twenty years! This rate is nothing unless you are prepared to do something about it. Want to kill interest in Shakespeare? Put him in a book, then put the book on a course of study.”

(Dennis, 1993)

The response was a report that suggested a move from rigid structures, rote learning and memorization to a system that welcomed freedom, reflection-based evaluation supported by both teacher and student involvement, and promoting inquiry in a student-centric environment. The report suggested methods that “work to foster that feeling of compassion among human beings which is the greatest strength and bulwark of democracy.” (Hall-Dennis, 1968) Most importantly, this report clearly states that the role of education in the province is not for an economic outcome, rather, that it should serve the spiritual and emotional needs of its students.

“Unless a people is on its guard, the economic demands of society can be made to determine what is done in education. The society whose educational system gives priority to the economic over the spiritual and emotional needs of man defines its citizens in terms of economic units and in so doing debases them.” (Hall-Dennis, 1968)

The report was welcomed at first with enthusiasm. There are records of multiple “experimental” educational methods introduced across the province at this time, including team teaching, open concept learning spaces, and using media as part of class instruction.

Criticism of the report included arguments that the child-centric methods were too permissive, that school was losing its focus on fundamentals and fears that children wouldn’t be employable due to functional illiteracy. Increasingly, a wave against progressivism built up over time and eventually Hall-Dennis was seen as the cause for multiple failures in the system.

“By January 1983, the bloom was off the Hall-Dennis rose and The Globe and Mail published a news feature by Judy Steed entitled “Crisis in the Schools.” West Toronto history teacher John Sheppard told Steed that teachers held the Hall-Dennis Report responsible for “destroying education in Ontario. Now, it’s the eighties,” Steed stated, “and it’s back to the basics with more structure.”(Bennett, 2011, p.17)

The confusion from the false start of change from the Hall-Dennis report, and the ensuing disorder resulted in a backlash that drove the system back into more structure and more control.



## A NEW ERA OF ACCOUNTABILITY

Major economic changes and political shifts in Ontario led to feelings of uncertainty into the 90's. The 1994 Commission on Education report titled, "For the Love of Learning" begins,

"Schools necessarily reflect - at least to some extent - the societies in which they operate. Therefore, it is not surprising that today's education system feels shaky, unsure, lacking in self-confidence, and struggling with a mandate that is increasingly uncertain and whose purposes are no longer self-evident." (Ontario Ministry of Education, 1994)

The document references the recognition of how education may be viewed by a more cynical public. The report remarks on a keynote speech given by Norman Henchey to the Council of Ministers' of Education First National Consultation on Education event, where he says:

"schools, from kindergarten through graduate schools, perform several functions that may not be officially acknowledged, among them the following: to socialize and control students; to "sort, sift and certify" students; to provide custodial care; to train in useful skills; and to use the implicit or hidden curriculum of rituals and relationships to prepare the young for the job market."(Henchey, 1994)

This remark is balanced by the assurance that "We want schools to develop students - all students - who are feisty, questioning, creative, imaginative, autonomous, and independent; and in the course of this report we will describe the kind of school system that we believe will achieve that exciting objective."(Ontario Ministry of Education, 1994)

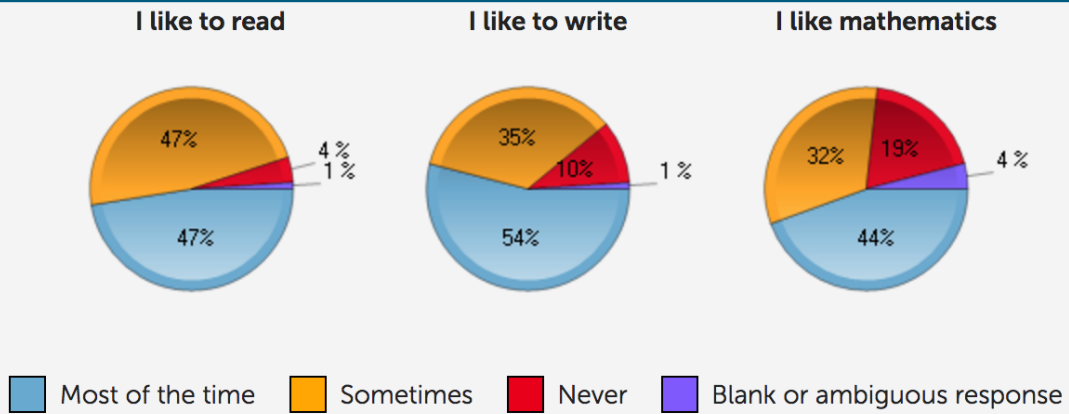
The document offers changes to the system that respond to the emergent needs of the changing province (within the context of a 1994 cultural paradigm). These include (but are not limited to) a recognition of lifelong learning, increasing need for global worldviews, supporting diversity and implementation of “accountability” mechanisms.

From the recommendations in this report, the Education Quality and Accountability Office was formed. “The main focus was to monitor students’ achievement at key points in their learning as a way of assuring the public that all students were being assessed in the same way and according to an established set of standards.” (EQAO, 5) This report also sparked the creation of the teacher certification body - the Ontario College of Teachers. “The College regulates the teaching profession in Ontario in the public interest by setting and enforcing high ethical and professional standards for its members.”(Mission Statement of the OCT)

EQAO testing is standardized, province wide, grade based testing that is conducted in elementary schools in grades 3 (to represent primary education in grades 1-3) and 6 (to represent junior education, in grades 4-6). The tests measure reading, writing/language and mathematics capability. These measures are meant to indicate the overall quality of the education that is being delivered by individual schools in Ontario.

Standardized testing in Ontario has provided access to student data in an effort to determine the quality of education that is provided in its schools. This data has supported the increased focus on teaching the three areas that are measured. The data has also informed adjustment to curriculum

**GRADE 3 STUDENT ATTITUDES: 2015–2016**



**COMBINED ACHIEVEMENT RESULTS FOR 2012–2014, 2013–2015 AND 2014–2016**

**Percentage of All Grade 3 Students At or Above the Provincial Standard**

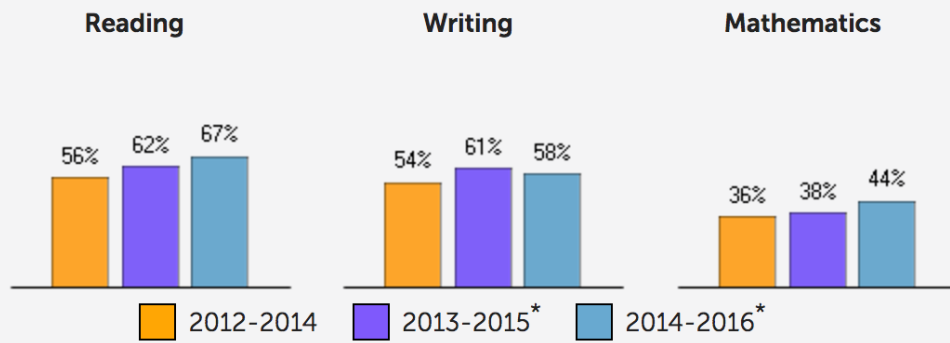


Figure 1  
Grade 3 EQAO Results for A.M. Cunningham Public School, Hamilton ON

standards for improved quality of education (that concurrently raises EQAO scores). In Ontario, there has been an overall increase in school reading scores, however, math scores have fallen over time.

“EQAO results show that the years of effort and attention given to improving language instruction programs in Ontario’s publicly funded school system have had a significant impact on student success. That kind of system-wide mobilization has been the model for what’s needed to improve student achievement in math”

Dave Cooke, Chair, EQAO (EQAO, 2017)

Standardized testing on a global level occurs using a measure called the PISA, an initiative launched by the Organization for Economic Cooperation and Development.

“The Programme for International Student Assessment (PISA) is a triennial international survey which aims to evaluate education systems worldwide by testing the skills and knowledge of 15-year-old students. In 2015 over half a million students, representing 28 million 15-year-olds in 72 countries and economies, took the internationally agreed two-hour test. Students were assessed in science, mathematics, reading, collaborative problem solving and financial literacy.”

(OECD, 2017)

The 2013 McKinsey report called, “How the World’s Most Improved Education Systems Keep Getting Better”, compares global education systems based on a method using standardized testing scores as a guide. This report lists Ontario as one of the top 4 education systems globally

and directly references the improvements it has made based on the accountability measures - mainly, data-driven curriculum changes and alignment of teacher development through the creation of the Ontario College of Teachers. (Barber, Chijoke & Mourshed, 2010)

There are discussions in education, however, that measuring performance in limited areas of competency is not reflective of the true quality of an education.

---

***“While I believe, whole-heartedly, that literacy and numeracy are of great importance, we have neglected the other areas that make a person and a society whole and full.”***

Secondary school teacher, Ontario (People for Education, 2015)

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Not only has there been questions about the societal and personal implications of standardized testing culture, there are critics who argue that this has economic implications for learners as well.

“These testing-centric regimes produce exactly the wrong labor products for the 21st century, but they are appropriate for what the world needed from the 19th century through World War II. As Robinson (2001) and others have argued, these fractured memorization models oppose the creative, synthetic thinking required for work in the new economy and effective citizenship.”

(Moravec, 2011)

These questions of validity of the evaluation criteria have led the advocacy group People for Education to begin a widespread rethinking

of measurement in our schools. “Measuring What Matters” is a multi-year program that is seeking to “establish a new framework for assessing and measuring success in education”. This program lists a group of competencies and conditions for school environments and for skills development that would signal successful learning. The competencies and conditions fall into five domains: Creativity, Citizenship, Health, Social-emotional learning, and Quality learning environments.

(People for Education, 2016)

The current system exists in a world where people are increasingly aware of rapid social, economic, global and cultural change.

We know that our schools’ focus on literacy and numeracy has been beneficial for learning, but there’s also a push for developing social skills, empathy and personal well-being (highlighted by the burgeoning anti-bullying focus and on in-school programs like “Roots of Empathy”, “Tribes”, and with a focus on Angela Duckworth’s “growth mindset”) that had up until this point not been addressed in policy.

Schools are changing. They are experiencing ongoing declining enrolment due to demographic shifts, and the number of alternative private schools in the province has steadily increased since the 1970’s.

People are more interested than ever in how we “do” education, evidenced by the popularity of videos like “The History of Education” by Khan Academy founder Sal Kahn and Sir Ken Robinson’s 2006 TED Talk “Do Schools Kill Creativity” (which is the most watched TED video of all time, with over 43,895,967 views).

The 2014 document, “Achieving Excellence: A Renewed Vision for Education in Ontario” is the most recent policy written to address the increasingly complex and diverse needs of future learners. It begins with a future orientation:

“In the years to come, Ontario’s publicly funded education system will move from great to excellent by ensuring our young people have the learning and skills they need to lead in the global economy.

By 2025, Ontario will have an early years and education system that seamlessly integrates services from early years to adulthood. Ontario will be a world leader in higher-order skills — such as critical thinking and problem solving — which will allow Ontario to thrive in the increasingly competitive global marketplace.”

Along with recognizing the need to invest in future skills, this policy defines 4 renewed goals for education system in Ontario.

“Our renewed goals for education are:

**Achieving Excellence:** Children and students of all ages will achieve high levels of academic performance, acquire valuable skills and demonstrate good citizenship. Educators will be supported in learning continuously and will be recognized as among the best in the world.

**Ensuring Equity:** All children and students will be inspired to reach their full potential, with access to rich learning experiences that begin at birth and continue into adulthood.

Promoting Well-Being: All children and students will develop enhanced mental and physical health, a positive sense of self and belonging, and the skills to make positive choices.

Enhancing Public Confidence: Ontarians will continue to have confidence in a publicly funded education system that helps develop new generations of confident, capable and caring citizens.”

---

***We are currently at a critical change point for education. This system, initially built to ensure security, economic growth and social conformity for the children of the new colony of Upper Canada is now at a point where it must promote diversity, recognize complexity and support personal development in a globally connected world that is headed into an uncertain future.***

---

One of the most recent documents to be drafted for learning in Ontario addresses the concept of 21st Century Learning competencies, and is intended to shape Ministry of Education policy to focus on developing these competencies in schools.

This foundation document, titled “Toward Defining 21st Century Competencies for Ontario” lists suggested areas of “innovative thinking and/or action” before creating an Ontario-specific framework.



“The implementation of a 21st century competencies framework to guide teaching and learning in Ontario will require innovative thinking and/or action in the following areas:

**Curriculum:** Significant reviews of curricula to embed 21st century competencies are required (and are being undertaken by a growing number of countries).

**The Focus of Teaching:** “Deeper learning” practices and new learning partnerships are required for students to develop 21st century competencies.

**Teaching Strategies:** A broad repertoire of pedagogical strategies is required to support the emphasis on deep learning and new learning partnerships.

**The Role of Technology:** In addition to developing students’ technological skills, technology-enabled teaching and learning practices play a significant role in supporting the development of the full range of 21st century competencies.

**The Role of Informal and Experiential Learning:** Life-wide informal learning and experiential learning play an important role in the development of 21st century competencies.

**Assessment Practices:** Transformative pedagogical approaches will necessitate changes to assessment practices.

**Physical Space:** Research supports the notion that where we learn affects the quality of how we learn.

(Ontario Public Service, 2016)

It is suggested in this document that the Ministry of Education should work to determine an Ontario-specific framework. This framework would be meant to align with the work that was released in 2014, “Achieving Excellence, a Renewed Vision for Education in Ontario”.

The text specifically calls out the need to maintain literacy and numeracy - the areas of learning that are currently measured on the EQAO test. “Such a competency framework would continue to recognize the important foundational skills of literacy and numeracy and core learning in other subject areas.”

Finally, the document suggests a grouping of the competencies that may be considered when developing future education policy in Ontario.

The following categories of 21st century competencies have been shown to have measurable benefits in multiple areas of life:

- critical thinking and problem solving
  - innovation, creativity, and entrepreneurship
  - communication
  - collaboration (teamwork)
  - a growth mindset (metacognition / learning to learn, perseverance, and resilience)
  - local, global, and digital citizenship
- (Ontario Public Service, 2016)

# DIFFERENTIATED:

## Summerhill



Summerhill was opened in Suffolk, England 1921 by writer A.S. Neill as the first children's democracy. It operates today as the oldest "free" school in the world.

- Private, Independent School
- democratic
- student led learning
- optional classes
- community based environment
- it is administered through democratic procedures by the students and staff members equally

Photo retrieved from: <http://www.summerhillschool.co.uk/>

Summerhill is the oldest democratic school in the world. It was started by writer A.S. Neill in 1921 as the first democracy for children, when children were still seen as second class citizens in society.

Summerhill is a free, democratic learning community that supports student-led learning. Summerhill maintains bells, timetables and classrooms, but students have the option of attending and self select their course of study. It offers formal classes in many subjects, but they are optional for students, who can select from many learning opportunities every day. Students recognize that they are responsible for their own education and are offered many options to make informed choices about how they will direct their own learning.

The school operates as a community, where students take on roles in the governance of the school and have equal stake in making decisions that affect the school. Summerhill is primarily a boarding school, but does have day students who also contribute to the running of the school.

***“Why doesn’t  
education  
focus on what  
humans can do  
better than the  
machines and  
instruments  
they create?”***

Russell Ackoff

## WHAT'S HAPPENING IN THIS SYSTEM?

Using the goals for the Ontario education system (as published in the 2014 “Achieving Excellence” policy document) as a framework, the following represents an examination of the system as it stands currently. Critical examination supports understanding where the system is enabled or limited in delivering on these goals (and whether or not it is able to produce the idealized future state of the system).

## Goal of the system: Achieving Excellence

‘Children and students of all ages will achieve high levels of academic performance, acquire valuable skills and demonstrate good citizenship. Educators will be supported in learning continuously and will be recognized as among the best in the world.’

(Ontario Ministry of Education, 2014)

The current measure of academic performance in schools is EQAO test results. (EQAO tests are Standardized tests of students’ reading and math abilities, delivered in public elementary schools in grades 3 and 6.)

There are varied opinions on Ontario schools’ use of EQAO testing to measure academic performance. The Elementary Teacher’s Foundation of Ontario (ETFo), (the Elementary Teacher’s union organization) has vocalized strong opposition against the process and the value of testing.

In a Western University study of Ontario teachers’ attitudes toward creativity, a majority of the teachers indicated that the testing was a diversion from “real learning” and that the requirements of the test actually hurt students’ ability to learn valuable skills in the long run. (Hondzel, 2013)

“This dichotomy reflects a subtle, but common perception among some teachers in this study that the test is invalid, requiring skills that are not relevant to life outside of school. When other teachers echoed this sentiment, they often clarified it by identifying creativity as a life skill, one which requires academic engagement and the ability to

make connections between disparate ideas and think deeply. Math and literacy skills taught without context, they felt, ultimately benefitted students on the test but not in their daily lives” (Hondzel, 2013, p. 34)

Conversely, the parents and the public see test results as relevant measures of educational choices. Test results are used as an indicator that real estate agents use to support home sales, and The OISE Survey of Public Attitudes Toward Education (2015) reports that:

“A majority of the public (57%) and parents (56%) agree that “If a school has good scores on province- wide tests for reading, writing, mathematics, parents should assume the school is doing a good job overall.” (OISE, 2015, p.3)

Preparing students for EQAO testing takes time away from other educational pursuits and puts focus on reinforcing the test material above other learning. Testing was implemented as an “accountability measure” that would indicate proof of quality teaching and learning at the school level. EQAO testing was not implemented to determine school funding, and is not tied to any outcomes for the school, or for the teacher at an administrative level, but there are reports that there is pressure to increase scores and prepare students to succeed at a cost of developing other skills. (Hondzel, 2013)

This process creates a system archetype known as “shifting the burden”.

The “shifting the burden” archetype is also the archetype of addiction, where the need for proof of quality learning outcomes balances with the focus on test topics in order to increase EQAO scores.

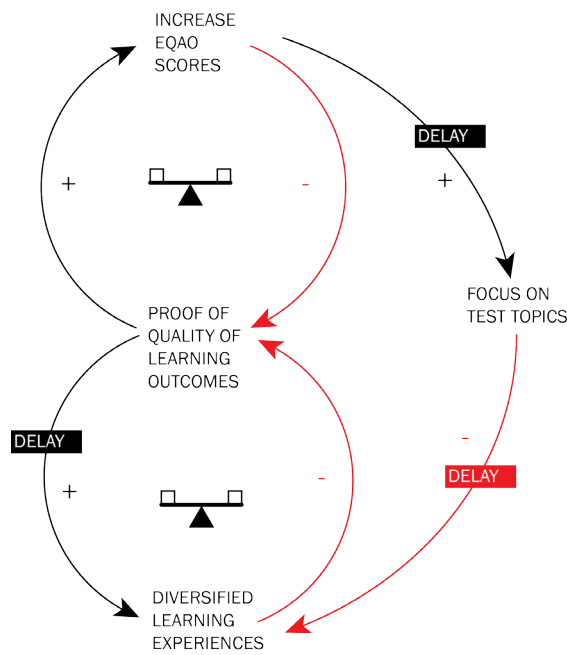


Figure 2  
Shifting the Burden System Archetype

quality learning outcomes. In this way, the system becomes “addicted” to continuing to focus instruction on test topics in order to maintain proof of quality learning outcomes and raise EQAO scores.

Academic performance is a difficult measure for schools. Some teachers report that EQAO testing and curriculum requirements are too rigid and don’t allow for data that shows students’ true abilities in school. This means that some students who have shown promise are in a position where their abilities are not recognized in testing (or other measures of performance), simply because they don’t fit the rubric. (Hondzel) This can mean that students who show promise start to believe that they are not capable of success at school, despite their teachers’ anecdotal evidence to the contrary. (Hondzel).

Access to diversified learning experiences was identified by the teachers in Hondzel’s study as a more successful way to teach life skills, but delays in the system mean that the focus on teaching test topics appears to be a more successful way to deliver learning over shorter time horizons. Because of these delays, this method of teaching, rather than a focus on diversified learning, appears to be delivering



Currently, academic measurement creates a positive feedback loop, where the students' perception of their ability is in direct correlation with the results of their measured ability. This is an amplifying effect, meaning the loop continues to amplify the initial state. This means that positive/negative results lead to more positive/negative perceptions of ability, leading to more positive/negative measures of ability etc.

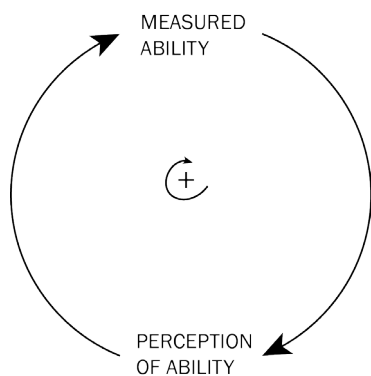


FIGURE 3.  
Amplifying feedback loop of student perception of ability.

Another dynamic that occurs in schools is called “the Pygmalion Effect”. This is when the inherent bias of the teacher is reflected in how they work with their students, creating a reinforcing feedback effect in the system. When mapped we can see that this effect fulfills the system archetype of “success to the successful.”

This effect means that students who are most likely to succeed in the current system are those the teacher has subconsciously (or consciously) identified as those who are more capable.

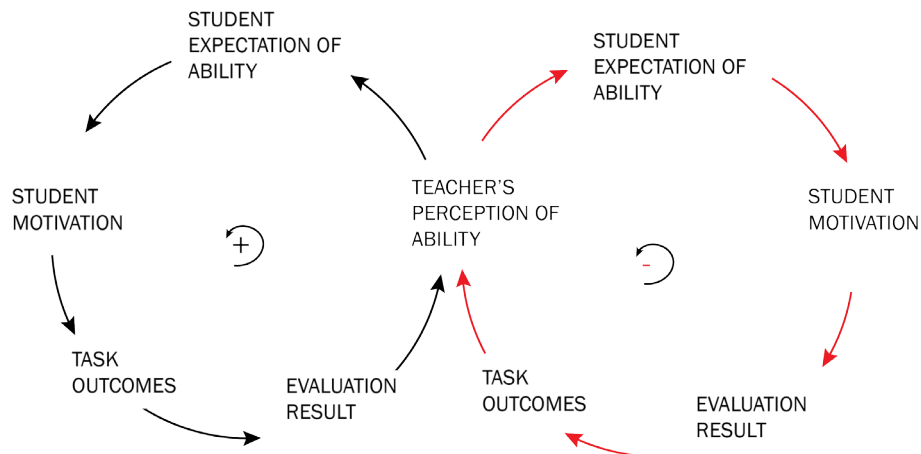


FIGURE 4.  
“Success to the Successful” System Archetype

“Our own studies and those of other researchers showed clearly that teachers’ experimentally created expectancies for the improved intellectual performance of their students actually brought about those improvements.”

This means that those who succeed are often those who are expected to learn best within the bounds of the current system. These learners feel more confident in completing tasks and are perceived by their teachers are more able to complete tasks. This then presents as the “Pygmalion Effect”, where the perceptions of the teacher are self-fulfilled.

Long term effects of this mean that schools are staffed with a team of teachers who have themselves succeeded within the education system that they now oversee (in order to become a teacher in Ontario, you must have a university degree and complete 2 years of teacher's college). This means that instruction and administration of the system is maintained by people who have succeeded within the constraints of the system, and who may be more resistant to make system changes.

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***“In general, the educational system produces security seekers, not change promoters.”***

(Ackoff, 2008, p. 196)

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## Goal of the system: Developing Valuable Skills

Multiple points of systemic resistance to change and the success criteria that are reinforced through evaluation (that don't support creative or critical thinking) lead to an interesting point of inquiry. If creativity and innovation are valuable skills for the future, how can creative students succeed in the system as it is today?

Dr. Catherine Hondzel's study looked at teacher's perceptions of creativity and the link between creativity and school success in Ontario schools. The study finds that creative students may underachieve and ultimately not complete their education within the confines of a rigid system that may not understand their needs.

“The increased emphasis on standardized testing may have shifted the emphasis in schools toward drill exercises and rote learning, and away from critical, creative thinking. The high-stakes testing environment has led to the elimination of content areas and activities including electives, the arts, enrichment and gifted programs, foreign language, elementary sciences, and elementary recess (playtime), which leaves little room for imagination, scholarship, critical or creative thinking, and problem solving (Gentry, 2006). This may eliminate opportunities for creative students to release their creative energy in school. When their creative needs are not met, students often become underachievers (Kim, 2008b, 2010; Kim & VanTassel-Baska, 2010). Underachievement leads to lower levels of educational attainment (Kim, 2008b), and high school students who are creative are more likely to dropout than other students, according to Kim and Hull's

(in press) examination of data sets from the National Educational Longitudinal Study (NELS: 88) and Educational Longitudinal Study (ELS: 2002).”(Hondzel, 2013, p.180)

Hondzel also found that teachers in the study who identified as valuing creativity, still thought of creative work as tied only to arts, and being of less value than other more academic subjects.

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***That creativity might be synonymous with fluff, or is anti-academic even in the minds of teachers who deeply value creativity is troubling, and speaks to an issue within the formal education system where traditional, bounded subjects such as math and English still hold positions of importance while others are relegated to positions of less value.*** (p. 97)

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The goals of Achieving Excellence in Ontario’s public education system are being subjugated by the current assessment structures and systemic resistance to the skills (creativity, critical thinking) that will be most valuable for the future.

## Goal of the system: Ensuring Equity

“All children and students will be inspired to reach their full potential, with access to rich learning experiences that begin at birth and continue into adulthood.” (Ontario Ministry of Education, 2014)

This goal for the system seeks to equalize education for all students, however, poverty - something the education system on its own cannot alleviate, is a significant factor in students not realizing academic success.

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***“Statistically speaking, the best advice we can give to a poor child keen to get ahead through education is to choose richer parents”.***

(Ontario Ministry of Education, 1995)

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The economic realities of living in Ontario mean that we are not able to ensure that all students have equal access to rich learning experiences. An attempt at creating more equity was made with the passing of Bill 160 in 1998, when funding for school boards was changed. Bill 160 required that all schools got funding based on the same measures, rather than from a percentage of the property taxes from the school’s catchment area (which created a disparity between “have” and “have not” schools). This was meant to equalize the effects of economic differences (because funding was based on property taxes) in the quality of experience in the school.

Funding policy has been changed to create equity, however, an increased demand for alternate sources of money for additional materials,

experiences and opportunities has maintained the disparity that was the initial cause for the change in the funding model.

Operational realities in schools today reflect social inequity. Economic factors are still significant driving factors in the experiences of Ontario students. In their 2013 report, People for Education reported that:

- 99% of elementary schools and 78% of secondary schools report fundraising activities by parents, students, and staff.
- 47% of elementary schools fundraise for learning resources (e.g. classroom technology, online resources, and textbooks)
- The top 5% of secondary schools raised the same amount as the bottom 85% combined.
- 93% of elementary schools report asking parents for fees for field trips.
- 61% of elementary schools report asking parents for fees for extracurricular activities.
- 78% of secondary schools report having athletics fees, which range from \$5 to \$1,200
- 91% of secondary schools report having a student activity fee. The fees range from \$5 to \$110  
(People for Education, 2013)

Increased demand for fundraising has effectively reintroduced the “have” and “have not” schools based on socio-economic status of people within school catchment areas. School fundraising is used to fund additional school programming, field trips for experiential education opportunities and other resource materials which support learning and offer a diversity of experiences to students of public schools.

“Our families (over 70%) live in government subsidized housing. Our ability to fundraise is negligible. Our school has no playground equipment.” Elementary school, Kawartha Pine Ridge DSB  
(People for Education, 2013)

The need for fundraising efforts to support school activities and learning opportunities is also a challenge for many schools who have reduced student numbers as a result of demographic changes.

“The decline in enrolment has an impact on funding, on the viability of small schools, and on school boards’ capacity to apply economies of scale to support the range of programs, services and resources that all students need.” (People for Education, 2013)

This means that, despite attempts to equalize the system, there continues to be a division between rural schools (in areas with low populations) and those that are in more densely populated areas. Staffing, programming and funding is based on the number of students in a school building, and many rural schools are simply not large enough to have access to the breadth of experiences and opportunities that those in more populated areas are able to offer.

Access to fewer resources often reinforces marginalization through systemic discrimination.

In 2007, The Ministry of Education introduced the First Nations, Métis, and Inuit Education Strategy and Framework to build support for success for all aboriginal students. Despite good results from cultural support,



self identification initiatives and opportunities for Aboriginal education, A 2015 report from People for Education found that schools with a high proportion of Aboriginal students lag behind the rest of the province in access to staff that are strongly linked to student engagement, such as librarians, health and physical education teachers, and music teachers. (People for Education, 2015)

This creates another “success to the successful” archetype, where there is an amplifying effect on the positive and negative outcomes of the need for funds to support learning.

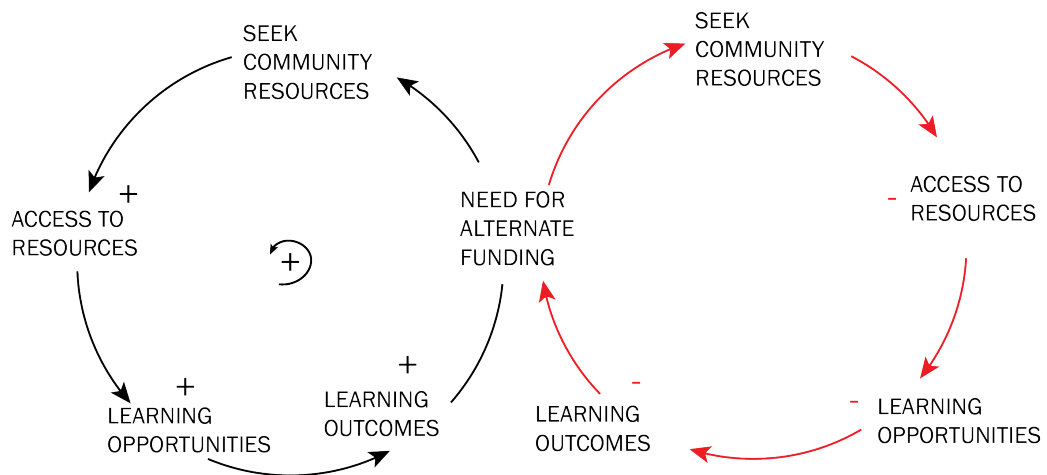


FIGURE 6  
“Success to the Successful” system archetype in Fundraising

This archetype illustrates the increased learning opportunities and outcomes that are gained when schools have access to more resources in their communities. It also illustrates the limited opportunities and outcomes that are the result of a lack of resources in the community.

Rural schools also face the increasing reality of limited services and a “commute” to school. With declining enrolment and increasing funding pressure from the Ontario Ministry of Education to close schools with low enrolment, more rural schools are closing and consolidating their populations in areas that require some to travel by bus for almost an hour each way every day. Schools’ funding for programming is partially determined by enrolment and the number of students per square foot of the school building. This can mean that students from rural areas are limited in two ways - by limited programming at their schools, as well as by the schedule for transportation. If you are a rural student who is bussed in to a larger school, you may have more programming available to you, but the length of a bus commute means that you may not be able to attend school events, join extra-curricular activities or complete work until later in the evening.

We can see that ensuring equity is a difficult proposition given the ministry’s limitations of school board funding, inconsistency in teacher education on social issues (such as the FNMI Initiative), social inequity (reflected through school fundraising), and the vastness of the geography of the Province of Ontario.

## Goal of the system: Promoting Well-Being

“All children and students will develop enhanced mental and physical health, a positive sense of self and belonging, and the skills to make positive choices.”(Ontario Ministry of Education, 2014)

This goal, added to the 2014 version of the Renewed Vision for Learning is aligned with several initiatives that seek to improve well-being for kids in Ontario and/or Canada.

“Over many years, we have seen growing evidence to demonstrate why well-being is fundamental to overall student success. Students cannot achieve academically if they don’t feel safe or welcomed at school, if their mental health is at risk and if they don’t have the tools or motivation to adopt a healthy, active lifestyle, both inside and outside of school. This is because children who have a positive sense of well-being are more resilient and more successful as learners. We also know that children who have a positive sense of self are better equipped to meet the challenges of a fast- paced and globally-connected world and to be active engaged citizens now, and in years to come. Ontario is committed to helping students build the knowledge and skills associated with positive well-being”

The Ontario Well-Being Strategy for Education lists four domains of well-being and some corollary behaviours that fall under each domain. (see figure 5)

The Cognitive domain, listed as “The development of abilities and skills

## The Four Domains of Well-Being

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- **Cognitive:**  
The development of abilities and skills such as critical thinking, problem solving, creativity, and the ability to be flexible and innovative.
- **Emotional:**  
This involves learning about experiencing emotions, and understanding how to recognize, manage and cope with them.
- **Social:**  
The development of self-awareness, including the sense of belonging, collaboration, relationships with others, and communication skills.
- **Physical:**  
The development of the body, impacted by physical activity, sleep patterns, healthy eating, and healthy life choices.



Figure 7  
Domains of Well-Being from the Ontario Ministry of Education  
Image source: [www.edu.gov.on.ca/eng/about/WBDiscussionDocument.pdf](http://www.edu.gov.on.ca/eng/about/WBDiscussionDocument.pdf)

such as critical thinking, problem solving, creativity and the ability to be flexible and innovative” is especially of interest due to research outcomes.

Two interview respondents for this study suggested that critical thinking is a valued skill for future learning, but can be seen as a difficult skill for teachers and parents to contend with.

“As the staff members were close to finishing the task, several of them began to openly wonder about the emergence of an unsettling idea: compliant students are easier to teach. After a little more reflection, they modified the idea, realizing that compliant students are actually harder to teach, but easier to manage. Engaged learners can display annoying behaviors, such as being so immersed in something that they ignore directions, being preoccupied with something that is not in the scope of the expected performance, or turning work in late because it just wasn’t ready to be finished yet.”(Zmuda, 2010, p.140)

“Everybody says they want students to be taught critical thinking. Almost nobody means it. Parents don’t want their kids challenging their core values. Kids challenge the things that their parents value. And if they go to schools with other kids from lots of different religions, that can be a problem. That can lead to really complex and difficult conversations.” (Goodman, 2017)

“It’s harder to teach critical thinkers. They question things.”  
(Patterson, 2017)

Beyond critical thinking, formal structures in schools can limit flexibility. In speaking with Dr. Leslie Patterson, who teaches prospective teachers about using systems thinking techniques in elementary school classrooms, I asked how teachers balance the properties of self-organization and collaboration within the context of the school schedule and classroom setup. She reported on having to adapt the methods of the teacher around school processes (like scheduled breaks and fire drills

etc.), in order to maintain the hierarchical structure that is needed to operate within the framework of how schools operate.

Many of the formal operational structures in schools (bells, single file lines, recess (nutrition) breaks, schedules, codes of conduct etc.) are in place for organizing daily activities and to maintain student and staff safety (and limit liability). These structures also limit flexibility for class work and enforce rigid behaviours that no longer reflect the expectations on behaviour outside of school.

“The failings are all interrelated and stem from a fundamental flaw in the premises underlying the entire current educational paradigm—namely, that the system must be based on external control of the clients it serves, because of their inability to be responsible for their own education in the context of a modern, developed society.” (Ackoff & Greenburg, 2008, p. 122)

These structures require conformity for the sake of administration of the school, but they promote behaviours of compliance that don't serve students or promote flexible thinking. These hierarchical structures of administration deny individual needs of people for the sake of the needs of an administrative structure. This represents the antithesis of critical thinking, flexibility, innovation and creativity.

Creativity, innovation and flexibility though, are key in supporting the ideal conditions for positive well-being.

Hondzel's study (2013) reported that when individuals regularly participate in activities that engage creative, innovative, and imaginative

cognitive processes, they self-report higher levels of overall happiness and well-being. This study also reports that happiness and well-being support structures of mental and physical health, with “Self-reported happiness and well-being are related directly to lower incidences of health problems and optimal mental and physical functioning.” (Hondzel, 2013)

These benefits of well-being can be elusive in the environments in which we administer schools, but they do exist. Ontario schools give teachers autonomy in their classrooms and how they deliver the curriculum, which can mean that a student’s freedom to be creative is a matter of having a teacher who supports creativity.

Hondzel’s study of teacher perceptions of creativity in Ontario public schools showed that many teachers highly value creativity and try to encourage and support their students in creative endeavors. The study interviews highlight how developing a classroom environment that promotes psychological safety, offers differentiated instruction, uses collaborative work, and values individual learning styles helps to support creative activity in classes. (p. 68) Classroom autonomy means that teaching methods, values, and environments vary widely, so creative support is neither consistent across schools nor guaranteed from teacher to teacher in grade promotion.

“Teachers make the education experience.”(Goodman, 2017)

## “Sort, sift and certify”

Schools serve a social function, building connections to our peers and exposing us to new ideas and new cultures that we may not otherwise become aware of. Cross pollination through exposure to new ideas and new ways of thinking is important in developing novel ideas and in making new connections, which are identifiers that mark creative thinking. These are also ways that we build community and strong networks of social capital. This is the process Robert Putnam describes in his book, “Bowling Alone”. In order to build social capital that builds strength of community, we need to have the opportunity to build “bridging capital”, where we meet and interact with people who are not like us. Being involved in more experiences that open up opportunities for more diversity of thought builds strength in networks and enables us to be more creative.

“Schools have an opportunity to promote not only tolerance but also complete acceptance of those who “differ” from us.”(Ackoff & Greenburg, 2008, p.251)

“... if we want to build a relatively strong foundation for a child’s creativity, what we must do is broaden the experiences we provide him with. All else being equal, the more a child sees, hears, and experiences, the more he knows and assimilates, the more elements of reality he will have in his experience, and the more productive will be the operation of his imagination.”(Vygotsky, 2004, p.14)

Division of students by age limits relationship building, narrows diversity of experience and discourages student collaboration across a spectrum



of ages. This means that the rigid administrative structures of the public education system are limiting opportunities for student well being.

Breaking classes into grade levels by age was an import from the Prussian education system that Egerton Ryerson implemented after 1846. Still, we continue to manage public schools this way, despite the fact that age is not an indicator of your level of ability. Age-based classification of learners infringes on opportunities for students to self identify their strengths and weaknesses. It prompts comparison to classmates who may be at very different levels of development and ability, and denies individuality. Classifying students by age may be limiting the development of self awareness that this well-being goal seeks to support.

“The reality is that every child has his or her own highly specific and original way of growing up. No two siblings, no two identical twins, have ever developed the same exact way over their childhood years. This diversity begins at birth - indeed, even in the womb - and never stops until we die. To deny this diversity is to deny the very existence of individuality. To acknowledge this diversity and nevertheless insist that each child be treated as if he or she is developmentally similar is to deny every child the right to grow up expressing his or her individuality to its fullest extent.” (Ackoff & Greenburg, 2008, p.110)

## Goal of the system: Enhancing Public Confidence

“Ontarians will continue to have confidence in a publicly funded education system that helps develop new generations of confident, capable and caring citizens.”

Public confidence is crucial in the democratic system in which Ontario public education is administered. This confidence guides votes at a provincial and municipal (trustee) level and supports successful administration of schools at a board level. Public confidence affects the way that school communities work, and it shapes the experience of children in their individual schools through parental involvement.

This goal seeks to develop confident, capable and caring citizens while ensuring the maintenance of public confidence in the system. Ministry documentation links this confidence to data outcomes and financial accountability.

“The province invests about \$23 billion a year in education. A major part of enhancing confidence is ensuring accountability for the use of these resources.” (Ontario Ministry of Education, 2015)

Public perceptions of educational value and the development of learners’ future abilities are not always aligned. Reports on public opinion of school effectiveness show a disconnected public understanding of daily school operations and education governance. This is evidenced in these divergent findings in the 2015 OISE school effectiveness report:

“Satisfaction with schools is at record levels; over 60% are somewhat or very satisfied with the school system in general. Satisfaction with the school system is now on a par with satisfaction with the job teachers are doing, indicating that system problems are no longer seen as seriously undermining teachers’ efforts.

Low confidence ratings persist for schools, and even more so for educational policy. While satisfaction with the school system has risen as funding has been restored, there is still considerable uncertainty about future directions.”

Public opinion was mixed at the implementation of full-day, play-based learning in kindergarten in Ontario, but now, 7 years after implementation and having demonstrated success of the program, there is widespread acceptance and agreement that it is valuable.

“In 2010, the introduction of full-day kindergarten ushered in a new pedagogical approach to educating three, four and five year olds. Ontario classrooms are moving to an inquiry, play-based model of teaching and learning for the kindergarten years. In 2015, large majorities (82% of the public and 79% of parents) agree that inquiry, play-based learning supports young students to be successful in school and in life”

There was also a public outcry to get “back to basics” when children started learning discovery math at schools despite the fact that this method has been shown to support better understanding and problem solving skills for learners.

There is a strong emotional tie to “school” that is based in a historical understanding of what school should be. When our children’s experience doesn’t match ours, it is seen as a degradation of education. This attitude affects policy development and holds us back from large scale system reform for the good of our learners and the future. If we saw education the way we see healthcare, we might welcome change as an advancement that benefits learning, but, nostalgia for our own experience and strong emotional ties to the experience and success of our children often mean that we tend to see any changes in the education system that are unfamiliar to our mental model of “school” as a negative. This mental model holds us back from advancing at the pace that is possible (and required) for success in the future.

The need for positive public opinion means that the pace of change in education tends to be slow and incremental. This can limit the opportunity for innovation in the education space. It is difficult to gain acceptance for new and novel ideas, particularly in education, when outcomes of change are hard to measure in short time horizons, but where governance structures are managed through elections within short time horizons.

There is a generational expectation of education, where the mental model of adults who decide what education should be and how it works actually limits the possibilities of what education could be for the next generation.

The need to appeal to public opinion limits educational innovation, limiting possibilities for the future for Ontario’s learners.

This critical analysis of the current state of public education policy in Ontario details areas that are limiting the system from creating the conditions it aspires to create for students. These areas are defined as:

**Limited Assessment and Evaluation Structures**

**Systemic Resistance to Critical Thinking/Creativity**

**Operating Within Social Inequity & Providing Social Support**

**Structural Rigidity of System Administration**

**Limits to Change**

**(Stakeholder Expectations and Need for Approval)**

**Limited Assessment and Evaluation Structures:**

The goals of Achieving Excellence in Ontario's public education system are being subjugated by current assessment structures and systemic resistance to the skills (creativity, critical thinking) that will be most valuable for the future.

**Systemic Resistance to Critical Thinking/Creativity:**

Critical thinking can be viewed as a challenging behaviour, and creativity is often seen as specifically related only to arts education or as a process of creating new economic products (i.e. startups).

**Operating Within Social Inequity & Providing Social Support:**

Ensuring equity is a difficult proposition given the ministry's limitations of school board funding, inconsistency in teacher education on social issues (such as the FNMI Initiative), social inequity (reflected through school fundraising), and the vastness of the geography of the Province of Ontario. Schools are increasingly playing a role of social support through programming and focus on well-being initiatives, however, this

is challenging in schools given assessment and curriculum requirements, limitations on staffing levels by student population numbers and reliance on inconsistent levels of staff engagement for delivery.

### **Rigidity of Organizational Structure of Administration**

Rigid administration in the public education system limits opportunities for student well being. System structures (bell times, single file lines, desks in rows) are built for compliance and lower the promotion of creative thinking and critical thinking skills.

### **Limits to Change (Stakeholder Expectations, Need for Approval and System Resistance):**

The need to appeal to public opinion for voter approval limits educational innovation to projects that have short term indicators of popular value over those that may be less popular and span longer time horizons for true transformational change. This limits possibilities for the future for Ontario's learners.

These areas are not specifically named in "Toward Defining 21st Century Competencies for Ontario", however, they will have a definite impact on the ability of the system to deliver on the goals as planned. The action areas recommended in the document highlight areas that will be directly challenged by the current system limiting factors.

This understanding of system limiting factors and the proposed areas for change as written in current Ontario educational policy led to the selection of the research methodology.

***“The principal goal of education...should be creating men and women who are capable of doing new things, not simply repeating what other generations have done; men and women who are creative, inventive and discoverers, who can be critical and verify, and not accept, everything they are offered.”***

Jean Piaget

# HOW DO WE GET TO THE FUTURE FROM HERE?

I employed a foresight methodology to determine how the current system of education in Ontario might change over long time horizons.

Looking to 2040 as the future state, I compared the current state of public education in Ontario to the possible future(s) in order to determine how the system might transform to result in socially responsible and flourishing learners in 2040.

Using Inayatullah’s Causal Layered Analysis model supports a poststructural approach to foresight by examining the structures that construct our ways of believing.

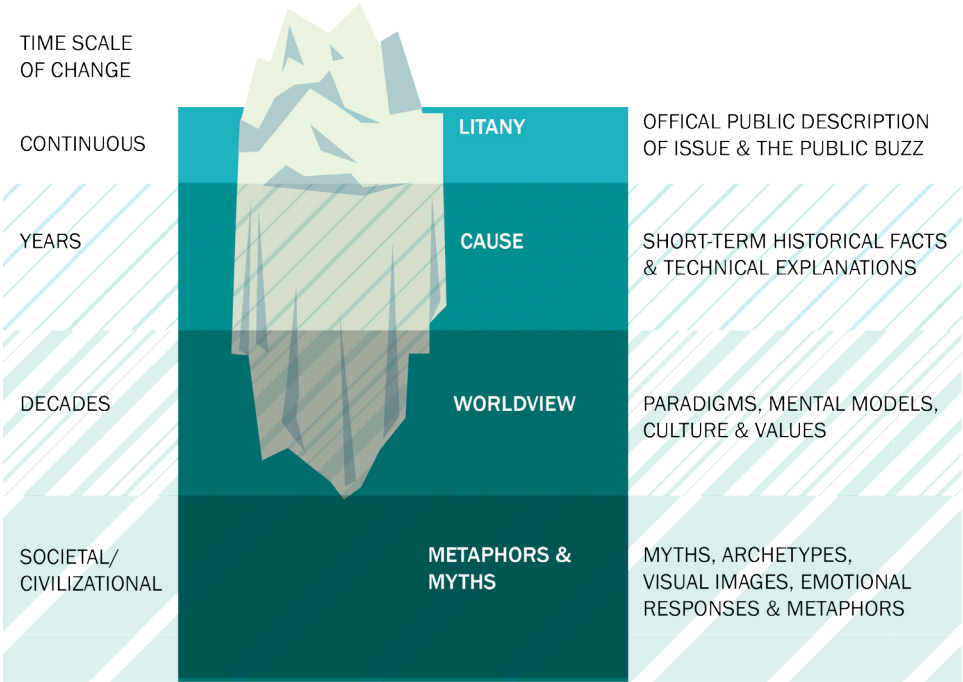


Figure 8, Causal Layered Analysis Diagram image adapted from Hines, Inayatullah, and List,



“Causal layered analysis is concerned less with predicting a particular future and more with opening up the present and past to create alternative futures. It focuses less on the horizontal spatiality of futures—in contrast to techniques such as emerging issues analysis, scenarios and back-casting—and more on the vertical dimension of futures studies, of layers of analysis. Causal layered analysis opens up space for the articulation of constitutive discourses...” (Inayatullah, 1998)

This allows for a deeper understanding of the myths/metaphors that underpin the structures that are being examined.

“Causal Layered Analysis (CLA) is useful in that it structures reality into four aspects: the litany or day-to-day construction of events and data; the systemic, or the deeper social, technological, economic, environmental, political, causes of the litany; the worldview, or the perspective of reality from the positions of the various stakeholders; and, finally, the myth-metaphor level, the often unconscious stories individuals and organizations tell themselves about the way things are or are not. Using CLA, deeper causation can be better understood and a more robust strategy can emerge. All four levels are transformed, thus leading to deeper, longer lasting, and, thus, more effective change.

...It is this deeper level of foresight that moves organizations to make the transition from technical fixes to adaptive responses and even to transformative journeys, where they change as they create new futures. Based on a new story, they are able to see possibilities that were invisible before. Foresight at its best does that.” (Inayatullah, 2016)

For the sake of the poststructural analysis and in order to determine values-based, deep social policy levers for change that might be implemented over long time horizons, the Causal Layered Analysis method was combined with the Three Horizons method as described in the 2008 paper by Curry and Hodgson. This is in response to the need for educational policy to fit with public opinion, with the intention that change initiatives might be developed that engage deep drivers of public understanding and behaviour. Using analysis at this deep level of mythical and metaphorical social beliefs allows for better supporting transformative change rather than simply making structural changes to the system as it currently exists.

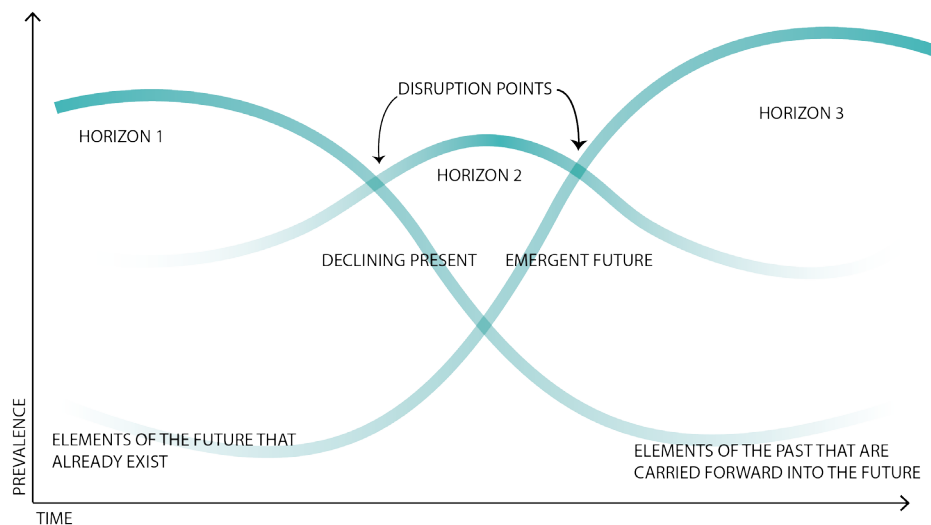


Figure 9, Three Horizons Model  
image adapted from Curry and Hodgson

“Horizon 1, then, at its left hand end, is the world in which we find ourselves today, and the way in which it is expressed and represented in prevailing discourse. The S-curve tailing away to the right represents the failure of any given model if it does not adapt to external change, which is, of course, a well-understood aspect of open systems theory (Katz & Kahn, 1966).

Horizon 3, in contrast, represents a world (more accurately, one of a number of competing worlds) that is desired by those who propose a different service model, a different political, cultural or institutional framework, or a different paradigm. Looking into the future, then, Horizon 3 represents proposals for transformative change. In the present, such proposals can be thought of as emerging issues, and the evidence for these is found only in small “pockets of the future” embedded in the present.”

Beginning with looking at a scan of sources of Horizon 1 (including expert interviews and primary and secondary sources) and using a scanning framework of Social, Technological, Economic, Ecological, Political and Values based ideas, a group of clear signals emerged as reflecting the current state of education in Ontario. These signals were clustered thematically and grouped and named to reflect the indicators of the trends.

The trends were then organized based on the structure of the Causal Layered Analysis.

TREND NAME	DESCRIPTION	CLA LAYER
ATTRACTING STUDENTS TO SCHOOLS	Demographic shifts mean fewer students at schools and more parental choice.	LITANY
TIGER MOMS AND HELICOPTER PARENTS	Higher parent involvement in kids' education and a trend toward more parent involvement in school operations.	LITANY
TECHNOLOGY = PROGRESS	Schools see increased use of technology as preparation for the future and making progress for future employment.	CAUSE
ONTARIO EDUCATION IS OK WITH ME	Ontario fares well globally in reports on quality of education based on standardized testing scores. Parents approve of EQAO measures as a method of determining quality of schools.	CAUSE
DIVERSITY IN THE CLASSROOM	Higher immigration levels, demographic shifts and more inclusive education means more diversity of thinkers in the classroom.	CAUSE
PERSONALIZED AND SPECIALIZED EDUCATION	More Independent Education Plans, Differentiated Instruction and recognition of diversity of learners in Ontario classrooms.	CAUSE
LOOKING FOR CHANGE	Public discourse on need for change in education is high, more parents are seeking alternatives to current education models	WORLDVIEW
PUBLIC OPINION RULES	Recognition that public opinion drives votes means that decision making is contentious and short sighted.	WORLDVIEW
INDUSTRIAL MODELS	Old infrastructure and old mindsets mean that we still do things a lot like we used to.	WORLDVIEW
STUDENT SUCCESS = ECONOMIC SUCCESS	School is seen as a place to develop earners, not learners.	MYTH AND METAPHOR
NUMBERS MATTER	We value quantitative measure over qualitative measure.	MYTH AND METAPHOR
PLAY IS OK FOR KINDERGARTEN	Transition to full day, play-based education is seen as successful in public discourse.	MYTH AND METAPHOR
CHANGE = RISK	Change is slow but there is progress. Few risktakers in the system and the system doesn't support risk - people don't want their kids education to be a testing ground.	MYTH AND METAPHOR

Figure 10, Current Trends

The trends of Horizon One were mapped to the Horizon 1 curve as shown:

HORIZON 1

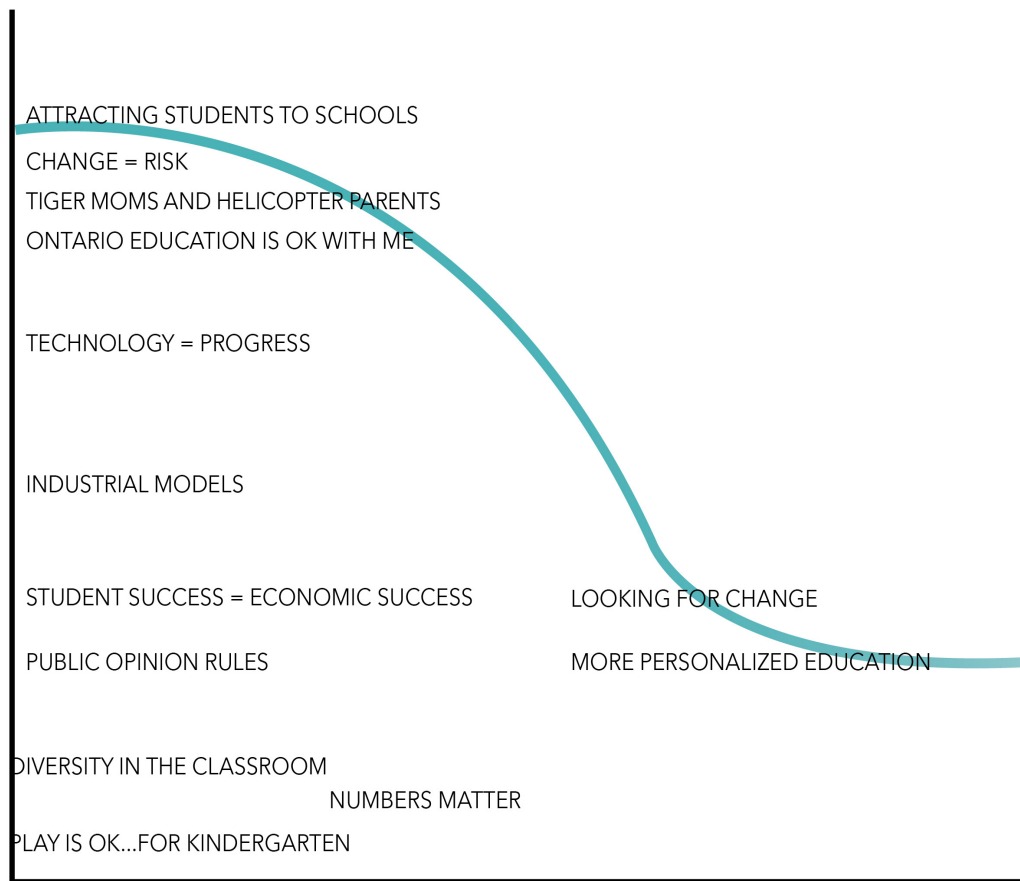


FIGURE 11  
Horizon One Map

## What do We Know about the Future?

The future of education is a popular topic, and there are a number of large scale projects with trend sets for the future from global, national and regional levels. For the purposes of this report, I used a scanning method of signals for the Ontario context to determine areas of thematic importance for the future. Then I examined trend sets from varied projects to determine which were applicable to the Ontario educational context based on the thematic areas. In the case where trends did not reflect the unique landscape of Ontario education, I scanned and clustered bespoke trends.

Trends in this document largely reflect the work of the Global Education Futures initiative, a global, open, participatory futures project that included the input of 26 global advisors representing a variety of professional backgrounds. This work, representing over 5 years of research and dialogues, is built on the belief that “education for a new, network based, and post-information society can be created only upon the principles that a new society observes: open dialogue, equality of standpoints, co-operation and co-creation.” (Luksha, 2014, p. 8) The work reflects a global mindset, with the understanding that global education systems are at differing levels of maturity and will experience different challenges to the year 2035. The report seeks to determine “universal challenges and goals for creating a new education domain” because “education is the point of transformation of our civilization... the key to building a different reality, and civilization’s stability and development hinge on it.”

TREND NAME	DESCRIPTION	CLA LAYER
UNPLUGGING FROM TECH	Fast change brings a sentimental response to nature and “before” while evolving technology to promote those things	LITANY
RETHINKING WORK	Work is changing to a gig-based on demand model, and we are changing how we think about work.	LITANY
NEW KNOWLEDGE CREATION MODELS	There are lots of ways to get access to information that you need to learn skills.	LITANY
ERA OF GAMING	More processes of living are completed through game based mechanics, technologies and virtual spaces	CAUSE
COGNITIVE REVOLUTION	The new ways that we live and work require changes in how we think. Fast uploads of skills through implantation and brain mapping to show learning are realities.	CAUSE
AUTOMATION OF MUNDANE INTELLECTUAL PROCESSES	More AI doing the work that people used to do, including “think work”.	CAUSE
MULTI GENERATIONAL LEARNING	Education shifts from schools for young people to something that everyone engages in at all ages and all times	WORLDVIEW
RISE OF THE CHILD	A trend toward deformalization from a shift to more network based ways of interacting means that we value children and we value their forms of learning and interaction differently.	WORLDVIEW
A NATION OF WHO AND WHERE	Blurred lines from immersion in global game based environments, increasing globalization and precarious values.	WORLDVIEW
COMMUNITY LEARNING	Learning that leads to self actualization activated through a group that supports development for all members.	WORLDVIEW
LEARNING AS/IN/FOR LIFE	Rethinking learning as a process of everyday living changes how we view education.	MYTH AND METAPHOR
QUALITY NOT QUANTITY	Advances in computing allow for measurement beyond numbers.	MYTH AND METAPHOR
UNSTRUCTURED IS OK	A move away from determined pathways and pedagogy to a freeform selective education ideology	MYTH AND METAPHOR
WEBS OF KNOWLEDGE	Recognition that human abilities are what will enable our futures means we value our unique human abilities more.	MYTH AND METAPHOR

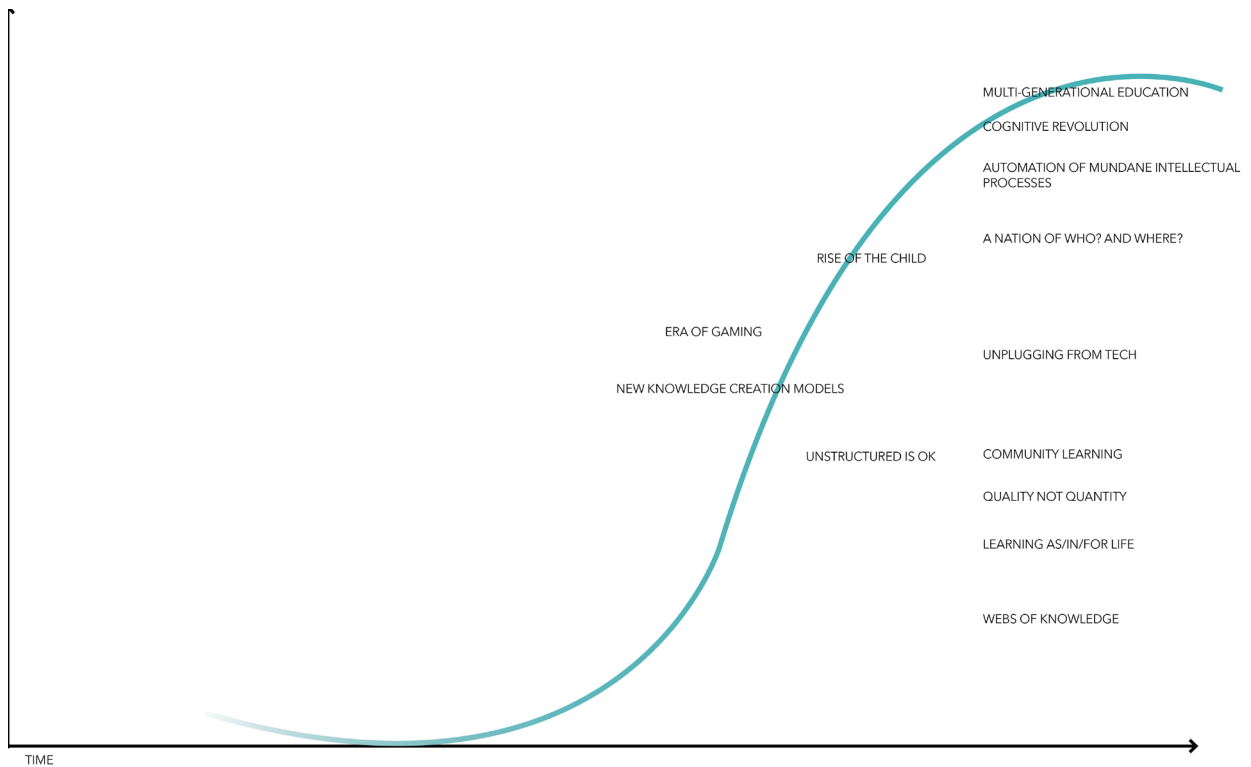


Figure 13, Horizon Three Map

There are clear thematic tensions between Horizon One and Horizon Three:

### Horizon 1

Hierarchical  
 Linear  
 Static  
 Bounded  
 Structured  
 Mechanistic  
 Inconsistent  
 Mandated  
 HumanEnabled

### Horizon 3

Networked  
 Non-Linear  
 Dynamic  
 Boundless  
 Free-Form  
 Holistic  
 Variable  
 Selected  
 Tech Enabled



After completing the mapping to Horizon 1 and Horizon 3 of the three horizons model, I realized that CLA layering would identify the deep drivers of change that would be required to complete Horizon 2, but that the CLA layering wasn't necessarily represented in the organization of the trends when mapped to the Three Horizons model.

In order to determine which of the Horizon 1 trends would support or oppose the future state of Horizon 3, and to consider these trends using the "weight" of the level of change they represent, I created a decision matrix for a relationship mapping exercise.

The trends were arranged in vertical layers as Horizon 1 and Horizon 3. Then Horizon 1 trends were mapped to Horizon 3 as either supportive, oppositional or null.

Opposition was evaluated as a positive result to one of the following questions:

"Does Horizon 1 oppose the social values that would be required for Horizon 3 to be widely accepted?"

"Does Horizon 1 oppose the creation/maintenance of systems/structures that would be required for Horizon 3 to be widely accepted?"

Support was evaluated as a positive result to one of following questions:

"Does Horizon 1 support the social values that would be required for Horizon 3 to be widely accepted?"

"Does Horizon 1 support the creation/maintenance of systems/structures that would be required for Horizon 3 to be widely accepted?"

This relationship mapping allows for the consideration of the temporal layout of the three horizons model, while considering the weight of the level of change represented in the CLA. This was important given the understanding that the layers of the CLA represent varied levels of depth, effort and effectiveness for changemaking. This is important information to inform the development of an effective change methodology for Horizon 2.



FIGURE 14, Relationship Map

## Results of Relationship Mapping:

In comparison of the trends from Horizon 1 and Horizon 3, there were some points of significant difference between the two horizons. These tensions were mapped to determine which trends were most impactful and at what level of the CLA these oppositions occurred.

In Horizon 1, the majority of opposition points stemmed from Student Success = Economic Success, a trend at the myth/metaphor level of the CLA. Second in number of opposition points was Industrial Models, a trend that falls in the worldview level of the Causal Layered Analysis. Technology = Progress, Ontario Education is OK with Me and Numbers Matter each had 5 connections, and are in the Cause and Myth and Metaphor levels of the Causal Layered Analysis.

## What does this mean?

The major point of opposition to the trends of Horizon 3 is the societal myth that Student Success = Economic Success.

This myth stems from the idea that hard work in school and success in academics has both an upward mobility effect and a “reward” of economic success in future. This idea underpins what appears to be a societal understanding of the purpose of school in Ontario (and Western society), as having a predominantly economic function. This myth is reinforced through schools’ increasing focus on building work skills, the propagation of stories of economic success through educational attainment and our drive to use education in Ontario to drive the GDP.

“..the “integrated whole” of learning and teaching as dependent on emotion, creativity, and play is immediately threatened, if it ever existed, by certain economic “imperatives” that turn teaching into producing labor-ready, underdeveloped individuals with marketable skills.” (Pelaprat, 2012)

## What does this oppose?

This trend maps as “oppositional” to the Horizon 3 trends:

Rethinking Work

New Knowledge Creation Models

Automation of Mundane Intellectual Processes

Community Learning

Learning As/In/For Life

Quality not Quantity

Webs of Knowledge

Unstructured is Ok

## What does this mean?

In Horizon Three, the trends outline a society where working in a 9 to 5, single employer job for many years simply doesn't exist anymore. These trends evoke a world where project based work is a norm and where people work when they have to, instead of working as the reality of daily life. This new world includes automation of many of the things that used to be done by people, where we have much more time to spend doing

oppositional to the Horizon 3 trend because it doesn't support the need for alternative measurement. The understanding of Student Success as Economic Success relies on the ongoing use of current measures of success and value in order to this myth to continue.

## Supporting Factors:

In Horizon 1, the majority of support points stemmed from Looking for Change, a trend at the worldview level of the Causal Layered Analysis. Second in number of support points was Play is OK for Kindergarten, a trend that falls in the myth/metaphor level of the Causal Layered Analysis. Technology = Progress was third most supporting of Horizon 3, and is at the cause level of the Causal Layered Analysis.

## What does this mean?

The major supporting factor to change in Horizon 3 is Looking for Change, which indicates that people are actively seeking alternatives to the current public school system. The second trend that has been included as a major supporting factor to change is Play is Ok for Kindergarten. Though this only had 5 connection points, this trend is important because it emerges at the deeper myth/metaphor level of the Causal Layered Analysis. This indicates that this is an ingrained "story" that will support the understanding of play based education into Horizon 3. It is also of note that although it only had 3 connection points, Personalized and Specialized Education had connections to 2 of three myth/metaphor level trends in Horizon 3, which indicates that it also plays a role in the transition to Horizon 3.

This analysis shows us that there are signals of the future in the current trends, and that there are some trends that will support the need for change over the very deep myth/metaphor level - specifically the fact that Play is Ok for Kindergarten - which helps us to see play-based learning as supporting the development of children and as a valid method of student-led learning. We can also see that the current trend toward Personalized and Specialized education will support the move toward future needs for individualized learning, as well as supporting the development of technologies that measure individuality for assessment methods.

# DIFFERENTIATED:

## Sudbury Valley School



The Sudbury Valley School is located in Framingham, Massachusetts. It was opened in 1968 as an alternative school, providing democratic, progressive education.

- Private, Independent School
- democratic
- student led learning
- enrolment is open to anyone, regardless of educational records
- no grades, no requirements of achievement
- graduation determined through presentation of a thesis that the student is “ready to take responsibility for themselves in society at large”
- it is administered entirely through democratic procedures by the students and staff members equally

Photo retrieved from: [http://www.sudburyvalley.org/06\\_sudb\\_19.html](http://www.sudburyvalley.org/06_sudb_19.html)

Sudbury Valley School is a large home on 10 acres of property, where children are free to ride bikes, read books, talk to each other or partake in other activities at their personal discretion. There are no provocations to learn, there are no mandatory lessons. Students from age 5-17 are able to self select and self guide their learning to suit their personal interests and motivations.

The school operates on the premise that children are naturally curious, and will seek out their own learning based on their own interests when given the opportunity. The school is completely unbounded by grade structures, age based classes or segmented learning spaces.

The school operates as a democracy, where all students have a say in how things are governed. They are asked to rule over issues and consider ethics and community values. Adults in the school serve as facilitators of learning, as well as role models of how to be an adult in the world.

The Sudbury Valley School is one of the oldest alternative schools in North America.

*“Put another way, education has both extrinsic and intrinsic functions. Its extrinsic or instrumental function is to encourage and facilitate the development of students and help make them helpful to others and self-supporting members of society. It should enable them to learn what they need to know and understand to make a living and contribute to the survival of the communities of which they are part. Education’s intrinsic function is to enable its subjects to derive satisfaction from activities that have no instrumental value—cultural and recreational activities such as enjoying music, art, and literature and engaging in recreational games.”*



In order to identify the qualities of Horizon 2 and to create a theory of change between Horizon 1 and Horizon 3, I crafted statements that represent the overarching values and ideologies of the metaphors that dominate each state.

Horizon 1 statements are:

Facts are true (and make us feel safe).

*Numbers Matter*

Contributing to society is making and spending money.

*Student Success = Economic Success,*

Different is uncomfortable.

*Change = Risk*

Horizon 3 statements are:

There are many versions of the truth.

*Quality not Quantity*

Contributing to society is bringing my unique value as an individual to a collaborative neurocognitive process.

*Webs of Knowledge*

Different is valuable.

*Unstructured is OK*

**SHIFTING VALUES ORTHODOXIES FROM 2017 TO 2040**

	2017	2023	2028	2033	2040
	Horizon 1	Horizon 1.5	Horizon 2	Horizon 2.5	Horizon 3
<p>Values statement:</p> <p><b>Contributing to society is making and spending money.</b></p> <p><i>Ideology:</i> We are consumers and our job is to maintain the economy.</p>	<p><b>Contributing to society is making and spending money that supports doing good for others.</b></p> <p><i>Ideology:</i> We are promoting social good through consuming and working.</p>	<p><b>Contributing to society is doing good for others.</b></p> <p><i>Ideology:</i> We have innate value as human beings. Our job is to support social good.</p>	<p><b>Contributing to society is sharing my unique value as an individual.</b></p> <p><i>Ideology:</i> We have innate value as human beings. Our job is to promote our humanity.</p>	<p><b>Contributing to society is bringing my unique value as an individual to collaborative neurocognitive processes.</b></p> <p><i>Ideology:</i> We have value as unique human members of neurocollective groups. Our job is to support and develop each other.</p>	
<p>Values statement:</p> <p><b>Facts are true (and make us feel safe).</b></p> <p><i>Ideology:</i> There are objective facts (quantitative and scientific).</p>	<p><b>Facts might shift but truth is truth.</b></p> <p><i>Ideology:</i> There's more than one way to measure the facts. (but quantitative is still seen as objective).</p>	<p><b>Facts are constructed. Truth might shift.</b></p> <p><i>Ideology:</i> There are different ways to see the facts. (we can consider different kinds of data)</p>	<p><b>There's more than one way to decide what is true.</b></p> <p><i>Ideology:</i> There are many different versions of facts. (we can measure different kinds of data)</p>	<p><b>There are many versions of the truth.</b></p> <p><i>Ideology:</i> There are no objective facts. (we recognize that all measurement includes design intention)</p>	
<p>Values statement:</p> <p><b>Different is uncomfortable.</b></p> <p><i>Ideology:</i> Change is scary and risky.</p>	<p><b>Different is interesting.</b></p> <p><i>Ideology:</i> Change is interesting but not for us.</p>	<p><b>Different is happening.</b></p> <p><i>Ideology:</i> Change is interesting.</p>	<p><b>Different is here.</b></p> <p><i>Ideology:</i> Change is in service to improvement.</p>	<p><b>Different is valuable.</b></p> <p><i>Ideology:</i> Change is part of an expected development process and is in service to improvement.</p>	

Figure 15, Shifting Orthodoxies

The Horizon 3 statements seem to align in many ways with the description of requirements for 21st Century Learning as written in the policy document “Toward Defining 21st Century Competencies for Ontario”:

- critical thinking and problem solving
- innovation, creativity, and entrepreneurship
- communication
- collaboration (teamwork)
- a growth mindset (metacognition / learning to learn, perseverance, and resilience)
- local, global, and digital citizenship

This is an indicator that the public education system in Ontario is aligned on a conceptual level with the ideals of Horizon 3. True, metaphorical alignment with the needs as determined in Horizon 3 would require some significant shifts in values and mindsets over Horizon 2. In order for these competencies to promote socially responsible and flourishing learners, change in Horizon 2 must represent shifts in societal values that would require questioning orthodoxies.

The Shifting Orthodoxies Grid (Figure 15) is the result of mapping the ideologies and values from the statements of Horizon 1 and Horizon 3. Once I identified the values and ideologies behind the beginning and end states of the change, I completed the grid to determine the incremental change that would be required to bridge from one to the other. This work is a conceptual guide that informs the metaphorical change that would be required to shift the public education system in Ontario from Horizon 1 to Horizon 3.

## How do we get there from here?

“...a new future can successfully emerge, if and when there is a supporting world-view and a guiding narrative or metaphor. Otherwise, it is too easy to return to what no longer works, as it is comfortable and our thinking supports old patterns (not to mention our habits and the financial systems that support them).” (Inayatullah, 2016)

Creating new, acceptable myth/metaphor level change is required to create a sense of possibility of alternative futures. (Inayatullah) For real, transformative change to happen in this state, there is a need to articulate alternative metaphors.

“It is not just that emerging issues and weak signals must be identified and alternative futures explored but that the core narrative of the business needs to be reimagined. The narrative part is critical in that a new story of the future needs to emerge. Using CLA (Causal Layered Analysis), the new story recasts, reframes, what is counted, what systemic interventions are required, and how stakeholders see the organization.”(Inayatullah, 2016)

In order to shape this new narrative, the metaphors of the most oppositional points in Horizon 1 will need focus for change in Horizon 2, and the metaphors of the most supportive points in Horizon 1 will need to be amplified to promote change in Horizon 2.

These metaphors are:

**Horizon 1**

**Oppositional:**

Student success = economic success

Numbers matter

**Horizon 1**

**Supportive:**

Play is Ok for Kindergarten

Personalized and Specialized

Education

We can also look to the supportive trends at the mythic level from Horizon 3 that cross over to Horizon 1 to determine what might be weak signals that can be amplified now in order to expedite the change.

**Horizon 3**

**Supportive:**

Learning As/In/For Life

Unstructured is OK

I recognized the need for CLA trends for Horizon 2 after completing the “Shifting Values Orthodoxies” grid (Fig. 15). From examining Horizon 1 and Horizon 3 trends within the context of the “Shifting Values Orthodoxies” grid, I determined that the following trends would emerge while making the shift from Horizon 1 to Horizon 3.

TREND NAME	DESCRIPTION	CLA LAYER
IDENTITY CRISIS	With increasing access to artificial intelligence, we begin to question where technology ends and humans begin	LITANY
PEOPLE POWER	A backlash against jobs losses from increasing automation leads to a people focussed movement that seeks to highlight the value of being human.	LITANY
WHO CAN WE TRUST?	Shifting governments and increasing engagement in virtual game-based environments leads society to begin to question who is in charge and who represents our best interests.	CAUSE
ERAS SHIFT	A major shift of eras and major understanding of this era as the “Anthropocene” where humans have altered the earth in irreversible ways.	CAUSE
A.I. OVERLOAD	AI is everywhere and we live with the reality of the change of lifestyle that it creates.	CAUSE
FRINGE IS GOOD	We recognize that difference is beneficial due to the increasing amount of artificial intelligence that guides our lives. We begin to recognize value in people who think differently and who have physical differences that make them behave differently.	WORLDVIEW
OPPORTUNITY ABOUND	More time due to automation and more leisure with a balancing economy means that there has never been a time where there is more opportunity to make change for how we live. We see less value in making things and more value in guiding social behaviour to shape better human experiences.	WORLDVIEW
REDEFINING VALUE	We begin to question the idea of infinite economic growth and start to look for new ways to define value. We recognize the need for sustainability.	MYTH AND METAPHOR
I AND WE	We see the importance of truly knowing who we are as individuals, as well as recognizing our place as part of a system. We don't see it as us against nature - it's us as part of nature.	MYTH AND METAPHOR

FIGURE 16, Horizon Two Trends

After completing this work, the Three Horizons Map was populated with the identified trends to illustrate the metaphors that would need to be

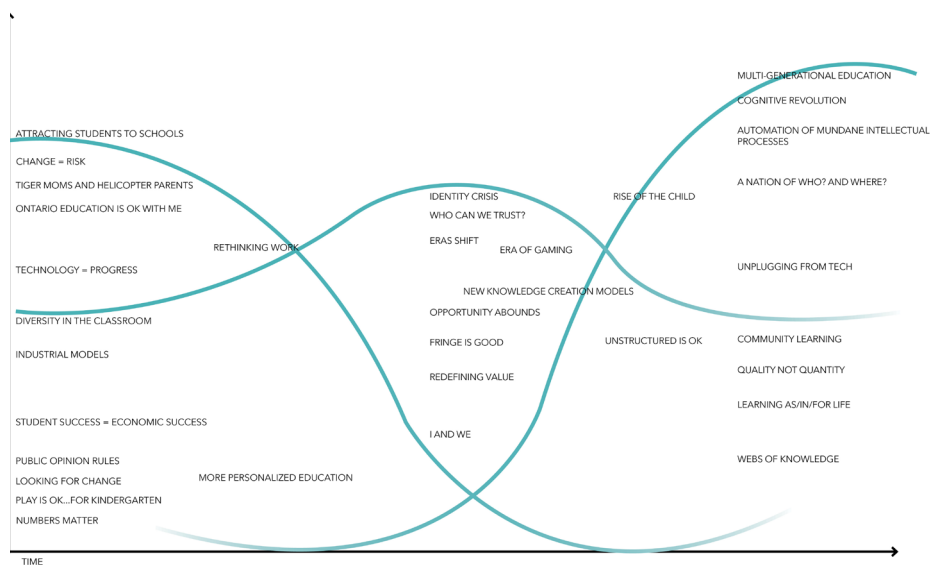


FIGURE 16, Completed Three Horizons Map

adopted in order for transformational change to occur.

In Horizon 2, there are major shifts in how we behave, what we value and in the structure of our social organizations and interactions. These changes bridge the differences between Horizon 1 and Horizon 3, and though this will be a turbulent time, this also appears to be a time where we will be more able than ever to make considered change to the way that we live our lives, raise our children and how we think about education.

## What are the metaphors for change?

The driving metaphors for change in Horizon 2 are identified as “I and We” and “Redefining Value”. These will both significantly affect the way that we think about education.

### I AND WE

This trend represents the “rebalancing” of the self assertive and integrative traits of our society. It is the place where we learn to value our identity both as unique individuals and where we value our roles as part of the larger natural system.

## Recognizing Our Identity as Natural Systems

While building the structures of public education in Ontario, we didn’t see ourselves (or large systems) as natural systems at all. Creationism was rooted in deep religious beliefs (Egerton Ryerson was a Methodist Minister), along with the need to build a “man vs. nature” story that drove nation building through the challenges of carving civilization into the forests of Ontario.

At a mythic level, the values behind the formation of Canada represent an anti-ecological nature of what Riane Eisler has called the “dominator system” of social organization. (Eisler, 82) (Also rooted in this dominator system are the values behind patriarchy, capitalism and imperialism- the clear social directive preferred by the ruling class and gentry).



***“The greatest danger in times of turbulence is not the turbulence—  
It is to act with yesterday’s logic.”***

Peter Drucker

The values of the dominator system, combined with a broadly mechanistic worldview driven by scientific and philosophical thought of the time, represent an imbalance in a paradigm for living systems that Capra refers to as self assertion and integration.

“These two tendencies-- the self assertive and the integrative - are both essential aspects of all living systems. Neither is intrinsically good or bad. What is good, or healthy, is a dynamic balance; what is bad, or unhealthy, is imbalance - overemphasis of one tendency and neglect of the other. If we now look at our Western industrial culture, we see that we have overemphasized the self-assertive and neglected the integrative tendencies. This is apparent both in our thinking and in our values, and it is very instructive to put these opposite tendencies side by side.

### Thinking

<i>Self Assertive</i>	<i>Integrative</i>
Rational	Intuitive
Analysis	Synthesis
Reductionist	Holistic
Linear	Nonlinear

### Values

<i>Self Assertive</i>	<i>Integrative</i>
Expansion	Conservation
Competition	Co-operation
Quantity	Quality
Domination	Partnership

One of the things we notice when we look at this table is that the self-assertive values -- competition, expansion, domination -- are generally associated with men. Indeed, in patriarchal society they are not only favored but also given economic rewards and political power.” (Capra, 13)

## Limited Assessment and Evaluation Structures

We now have a much more balanced view of gender, race, religion and diversity of thought than we did when our education system was built. Our will as natural systems is to seek balance between the self assertive and integrative, and we have a need to shift toward integration.

The ways that we measure success at school are imbalanced toward the self assertive side of Capra's paradigm for living systems - quantitative, linear, analytic and rational.

It seems that school evaluation methods often fight the diversity of thought that will be required for success in the 21st century. Todd Rose argues that "averagarianism" "compels each of us to conform to certain narrow expectations in order to succeed in school, our career and in life. We all strive to be like everyone else, only better." He goes on to add that because of this drive, "We have lost the dignity of our individuality. Our uniqueness has become a burden, an obstacle, or a regrettable distraction on the road to success." (Rose, 13)

These methods of compliance, conformity and standardization are actually fighting against motivation that drives learning.

"Excellence, too often, is not prioritized over conforming to the system."(Rose, 13)

In Horizon 2, we will come to recognize the value of our uniqueness, because being human will become our unique identifier in a world where automation is reality.

Moving into a reality where we recognize alternative methods of measure as valid and valuable requires questioning the structures that underpin major functions within our current society. Though this seems a large and daunting task, it appears to be the reality of the shifting orthodoxies we see happening in Horizon 2.

This means that the education system that we've put in place to build the society in which we live is now working against this natural shift. Current public education in Ontario supports and promotes (through assessment) a view of success that is unbalanced, effectively acting against the interests of a more equitable, responsible and balanced society.

## Redefining Value

In Horizon 1, Standardized testing, grading and other forms of evaluation are embedded in our culture as trusted scientific methods that give us factual results we can trust. Todd Rose, the director of the Mind, Brain and Education Program at the Harvard Graduate School of Education questions the use of using statistical averages to grade individuals. In his book, "The End of Average", Rose describes the adoption of averages from astronomical measurement to human measurement, documenting the work of Adolphe Quetelet, the first scientist to apply averages to the study of human beings.

Quetelet calculated averages based on data sets of human attributes and considered the average as the ideal - as the perfection that nature aspired to, and so the people closest to that average would be the greatest people. Quetelet invented the Quetelet index (now known as the BMI) to identify average health.

“Though today we don’t think an average person is perfection, we do presume that an average person is a prototypical representative of a group - a type. There is a powerful tendency in the human mind to simplify the way we think about people by imagining that all members of a group - such as “lawyers”, “the homeless”, or “Mexicans” - act according to a set of shared characteristics, and Quetelet’s research endowed this impulse with a scientific justification that quickly became a cornerstone of the social sciences.”

Rose’s work questions the way that we evaluate success in schools, and defines how we have been fooled into believing that units of measure are unbiased and valuable, when clearly they are not.

“From quantum physics we have learned that the presence of the observer can be reduced to a minimum, but can never be totally eliminated.”(Max-Neef, 2005)

The Horizon 1 orthodoxy is that we can trust numbers and scientific information as unbiased means that we tend to base certainty on a sense of a singular truth. In Horizon 2 we are understanding ourselves are part of a system, and see how we need to be better stewards of the earth as a part of us. This means that we realize that within nature there is no single truth. We don’t live in a static, binary system. We live in a dynamic, diverse system that continues to change. As we learn more, we learn more about what we haven’t known and haven’t included in the systems that we have built.

## Shifting Orthodoxies

Thomas Kuhn's Structure of Scientific Revolutions gave us the language of the "paradigm", where a comprehensive way of understanding was a shared model, from which knowledge was created. He argued that instead of knowledge being built on previous models, scientific knowledge underwent paradigm shifts, where completely new models of understanding replaced the old. The conditions in Horizon 2 constitute a paradigm shift, where what we believed to be true is no longer valid given the information we have learned.

Part of this shift must be the recognition of a need to redefine economic value. This is clearly stated by economist Manfred Max-Neef, who warns that we are at a point of crisis for humanity, and who argues that we redefine a new economy. His redefinition fits within the context of the new paradigm of Horizon 2, as well as within the metaphor of "I and We".

***Postulate 1.*** The economy is to serve the people, and not the people to serve the economy.

***Postulate 2.*** Development is about people and not about objects

***Postulate 3.*** Growth is not the same as development, and development does not necessarily require growth.

***Postulate 4.*** No economy is possible in the absence of ecosystem services.

***Postulate 5.*** The economy is a sub-system of a larger and finite system, the biosphere, hence permanent growth is impossible.

***Value principle: No economic interest, under any circumstance, can be above the reverence for life.*** (Max-Neef, 2010)

Redefining economic value in this way would support a change from seeing education as having an economic purpose, to education as a means for personal development. This would support reframing education as a lifelong reality rather than as having an end at adulthood.

This shift also supports the Horizon 2 realization that the systems that we rely on are simply the result of collective understanding that may change over time. This requires that we as a society become more comfortable with failure and that we recognize the limits of our own knowledge.

Changing our views about value (and shifting from the western mechanistic -industrial metaphor to a metaphor of natural integration), adopting reverence for diversity (and support of collaborative processes) and recognizing our place as part of natural systems, requires that we adopt new models of understanding. This understanding is grounded in the concepts of social responsibility and human flourishing.

# DIFFERENTIATED<sup>ed</sup>:

## Alpha Alternative School



The Alpha (*A Lot of People Hoping for an Alternative*) Alternative School is located in Toronto, Ontario. It operates under the Toronto District School Board as a public school.

- Public School
- democratic
- holistic, student led learning
- multi-age groupings
- no grades, no requirements of achievement
- it is administered through democratic procedures by the students and staff members equally

Alpha Alternative School was started after the release of the Hall-Dennis report in Ontario in 1972.

Under the motto of “Sharing Education”, the school offers co-operative, democratic and non-coercive learning opportunities to students. The students choose their learning and they work together with adults to administer the democracy of running the school.

The school was started by parents and still runs as a parent-teacher co-operative, where parents are welcomed and encouraged to spend time at the school and share their education with students and staff.

The school offers many creative opportunities for children, and engages them in social justice, communication, conflict resolution, and other learning through dialogic processes.

Photo retrieved from: <http://alphaschool.ca/wp-content/uploads/2015/05/bike-to-school-11.png>



***“Our task is not to predict the future; our task is to design a future for a sustainable and acceptable world, and then to devote our efforts to bringing that future about. We are not observers of the future; we are actors who, whether we wish to or not, by our actions and our very existence, will determine the future’s shape.”***

Herb Simon

## DESIGNING THE FUTURE OF ONTARIO'S PUBLIC EDUCATION SYSTEM

The resultant societal change of adopting the new metaphor level trends in Horizon 2 would support the opportunity for change in the Ontario public education system.

*But what might this change look like?*

This leads us back to the original research question.

*How might highly stable educational systems transform over long horizons to support the changing needs of Ontario's learners?*

- *How will the education system need to adapt to provide a relevant, engaging, substantive experience to kids and provide value to society?*
- *How can we use this system as a leverage point to promote positive social change?*
- *How can we adapt the current system to be prepared for the future? What gaps are there? What needs to change?*
- *How might understanding future needs change current social and educational policy?*

A comparison of the shifting orthodoxies grid between Horizon 1 and Horizon 2 (2017 to 2028) shows overarching ideological change over time. When we look at system limiting factors from the current state analysis, we see factors that, when adapted within the context of these ideologies, are more likely to meet the policy goals of the system while resulting in socially responsible and flourishing learners.

### Suggested Interventions for System Limiting Factors:

In order to adapt the Ontario public education system from Horizon 1 to Horizon 2, there are some system changes that could be made to ease the transition over the ideological and values changes.

These changes represent the need to hold the creative tension between the current reality and the vision for the future. This tension occurs in Horizon 1.5, where we are operating between these two states, and where there are indications of both future and past occurring simultaneously.

Peter Senge describes this creative tension in “The Fifth Discipline”. He illustrates the tension between these two states as an elastic band that is being stretched between the two states. The only way to release the tension is to move the current reality toward the vision for the future, or to lower the vision for the future to be closer to the current reality. In order for the Ontario public education system to maintain positive momentum to the future through Horizon 1.5, there must be continued momentum toward the vision.

This vision seems aligned with the concept of societal maturity and organizational development as outlined in Frederic Laloux’s book, “Advancing the Organization.”

According to Laloux's theory, the current management system of schools falls under the "Amber" category. In this category, the future is determined by the past. The guiding metaphor of the Amber category is the Army. This is a system that was built to support the needs of protecting a new colony and maintaining social order, and a system that created classes of factory workers who understood how to complete tasks.

In Horizon 1, there are some companies and organizations recognizing the need to create shared value over simple corporate responsibility, and there are more organizations moving toward what Frederic Laloux calls a "Teal" management style. In Horizon 1.5, we will see this becoming more predominant. In this state, we see organizations that are managed as living organisms, with self organizing networks of people, operating to realize the potential of the organization. Laloux's philosophy comes from developmental theory, where:

"One of its basic concepts is the idea that human societies, like individuals, don't grow in linear fashion, but in stages of increasing maturity, consciousness, and complexity."

This maturity can be seen in the transition grid, which documents the development values and ideological changes, combined with the changing states of the current factors that limit the Ontario public education system from moving forward.

This grid documents the changes from Horizon 1 to Horizon 2 and highlights the effects of the changes in the system that enable the maintenance of the creative tension and drive toward the vision for the future.

	HORIZON 1	HORIZON 1.5	HORIZON 2
PREVALENT METAPHORS	Student Success = Economic Success  Numbers Matter  Change = Risk		Redefining Value  I and We
VALUES STATEMENTS	Contributing to society is making and spending money.  Facts are true (and make us feel safe).  Different is uncomfortable.	Contributing to society is making and spending money that supports doing good for others.  There's more than one way to measure the facts. (but quantitative is still seen as objective).  Different is interesting.	Contributing to society is doing good for others.  Facts are constructed. Truth might shift.  Different is happening.
IDEOLOGY	We are consumers and our job is to maintain the economy.  There are objective facts (quantitative and scientific).  Change is scary and risky.	We are promoting social good through consuming and working.  Facts might shift but truth is truth.  Change is interesting (but not for us).	We have innate value as human beings. Our job is to support social good.  There are different ways to see the facts. (we can consider different kinds of data)  Change is interesting.
Limited Assessment and Evaluation Structures	Testing is seen as a valuable method of determining quality of education. Testing metrics are relatively accepted as valuable. Assessment is important but is being questioned in other provinces.	Testing is seen as a valuable method of determining quality of education. Testing metrics are questioned and alternative metrics are being researched. Assessment is increasingly personalized.	Testing metrics are changing to include measures of social good and well being metrics Assessment is shifting from personalized performance to experience.
Systemic Resistance to Critical Thinking/Creativity	Surface level acceptance of skill (but not incorporated into methods and measures)	Incorporation of creativity and critical thinking skills into daily activities. Increasingly, these skills are promoted and measured.	Recognition that creativity and critical thinking skills are crucial for success in future.
Operating Within Social Inequity and Providing Social Support	Attempts to support need draws resources from other areas and causes system tensions	Social support is increasingly incorporated into operations budgets of education system	Social support is embedded in operations of education system
Rigidity of Organizational Structure of Administration	Working within limits of administration inconsistently across schools and school boards - bells, silence, old pedagogical methods	Releasing structure of administration slowly - trying to determine how to ensure student safety, retain union approval and maintain public opinion within a less hierarchical organizational structure	Moving away from rigid administration structure (with resistance)
Limits to Change (Stakeholder Expectations and Need for Approval)	Change and innovation are limited by needs for approval within the system and by voters	Small scale change and innovation can be tested with less resistance. System wide changes are limited by needs for approval within the system and by voters	Small scale change and innovation are proven methods of creating valuable programming and building enrolment from stakeholders. System wide changes are limited by needs for approval within the system and by voters.

FIGURE 17, Transition Grid

## Limited Assessment and Evaluation Structures

In order to move from Horizon 1 to Horizon 2, I suggest a move toward more personalized assessment and recognition of uniqueness to promote the celebration of personal differences and diversity of thought. Releasing the need to grade based on ideas of “average” curriculum based expectations, these metrics could indicate what each person does with ease, what they are interested in, and what motivates their learning. This move could also be supported by looking to measure students’ well-being as a common indicator of school well being. Students would be invited to report on their experience. This would have an equalizing effect on some of the hierarchical structures of the system and would support critical thinking and personal well-being in the student population. If school administration were more accountable to the experience of students, what might school feel like? If well-being were measured and counted in the quality of your education, what might that change?

“So there’s also built into it a whole series of assumptions about social structure and capacity. It was driven by an economic imperative of the time, but running right through it was an intellectual model of the mind, which was essentially the Enlightenment view of intelligence that real intelligence consists in this certain type of reductive reasoning and a knowledge of the classics, originally, what we’ve come to think of as academic ability. And this is deep in the gene pool of public education, that there are really two types of people, academic and non-academic, smart people and non-smart people. And the consequence of that is that many brilliant people think they’re not because they’ve been judged against this particular view of the mind.”

Not only would this change of assessment influence how we see intelligence, it would affect our views of wealth, development and progress, helping to reframe these as human processes, rather than economic or technical processes.

“While the importance of having a job is undeniable, happiness scholars and those who lead the positive psychology field highlight that what leads to ‘progress’, ‘life’s further development’ and constitutes a ‘good life’ is not determined by income or economic indicators but rather by human connectedness, and meaning (Forgeard, Jayawickreme, Kern, & Seligman, 2011; Seligman, 2002). In addition, as Halpern (2010) highlights, it is relationships that make our societies, even our economies work, and these are the ‘hidden wealth’ that have a big impact on our wellbeing and the meaning we attribute to them.”

“Intelligence is the ability to learn, not a measure of how much one has learned.”

## Systemic Resistance to Critical Thinking/Creativity

Moving from Horizon 1 to Horizon 2 means consistent, increasing support for the development of critical thinking and creative thinking skills in schools. One of the things that limits the development of these skills in schools are rigid administrative structures. If we release expectations for compliance in students, we can better support their ability to express their independent thoughts in ways that work for them. This could also be supported by promoting cross-pollination of diverse student populations. Further to the need for creative thinking skills, we might start requiring educational training and professional development to include alternative classroom management strategies, creative thinking, and design capabilities. If we have teachers and administrators who work as facilitators of student-led learning, who value design and invite critical and creative thinking, we will more likely have students who are able to drive their own learning agenda and recognize their own power in creating their futures. The need for compliance in the Ontario public education system holds us back from supporting the full development of its students into the people they want to become.

“No matter how “good” the teaching or the opportunities to learn, an unmotivated student learns nothing. Motivated students and adults learn without being taught; they do so by means they select.”



## Operating Within Social Inequity and Providing Social Support

The education system, by the means that it is a constant, mandatory and free system in Ontario, is one of the only channels that truly supports all people, regardless of demographics. This means that this system has the unique ability to truly affect the way that we engage with each other as members of a community and the larger province.

The reality of the system is that it is often required to serve alternate functions to the educational mandate it was originally prescribed. The need to provide social support often requires compromise in order to meet the needs of staff and students within the strict schedules, curriculum expectations and organizational structures of the system. School buildings as places in community serve a social support function as well, and the current system pressure of declining enrolment often means that communities are losing their school buildings because school boards can no longer afford the costs of repair due to the limited student population.

I suggest here, that the school board no longer performs a property management function. If school buildings were owned by communities, and used as spaces for people to meet and talk, to get access to programming and social support, and where educational activities were occurring through the day, we would be able to promote civic engagement, social support and educational activities for life while lowering the costs of operations for school boards. (This idea definitely needs research - school boards are currently mandated to open their

schools as “community hubs” and are required to rent out their spaces by the Ministry of Education, but I think there is some promise in building a social “plaza” that includes an educational function, where we all come to get different needs met. This would support the move from Horizon 2 to Horizon 3 where schools as buildings start to disappear, and would be an interesting long term planning research project.)

I also suggest that teacher education and school boards look to diversify candidates for educational roles. We know that the system currently supports reinforcing feedback from hiring teachers who have themselves succeeded in the system, and changing the framework from which we view teaching candidates would open the opportunity for more candidates who offer diverse thinking and experience to support students.

“A school is a community of learners for teachers and students, and an effective classroom is a community of learners, in which the teacher functions as instructor, facilitator, and observer, and the students learn by listening, talking, helping others, and receiving help from others. Teachers, in observing and monitoring their students’ progress and response to the curriculum, are also learners, just as students, in teacher-structured interactions, tutor one another. If school is preparation for life, it must be life-like, with everyone able to do some teaching and a lot of learning.”

## Rigidity of Organizational Structure of Administration

The current system administration operates in what Frederic Laloux calls the Amber level of maturity - this is the same level as the Army. This fits with the history and the frame of reference of how we “do” school for people old enough to vote, but doesn’t work to support the ideologies and skills that learners will need as they get older. I suggest here a move towards “Teal”, where the system begins to recognize that the structures that are in place no longer serve them, and begin to actively move toward a more networked and holistic way of operating.

Moving toward a “Green” level of maturity would mean a short stay in the space of “Orange”. This is the place where we are actively trying to win, to be innovative, to achieve through merit. Though this seems counterintuitive to the transition state in Horizon 2, we can leverage this state to bolster organizational change in Horizon 1.5. This change would need to be managed in a highly strategic way in order to maintain public opinion of the drive to achieve by the Ontario public education system. It would also need to ensure public education staff enrolment in adopting innovation initiatives.

## Limits to Change (Stakeholder Expectations and Need for Approval)

The need for publicly approved innovative change within this hierarchical system poses a challenging proposition. How can we support fast, designed, prototyping of new educational system initiatives within the space of a highly stable and public opinion seeking system?

This could be achieved through supporting an educational innovation unit, a safe space to learn and test new ideas and methods for use in the system. This would mean that the Ontario public education system would continue their drive for innovation and achievement, but that the innovation unit could keep the strategic vision on moving to the Horizon 3 trends in order to shift the outcomes of the system.

The creation of this unit would enable the engagement of what John Kotter has called the “Dual Operating System”, this is “a management-driven hierarchy working in concert with a strategy network.” Kotter argues that this system is optimized for creating fast change within hierarchical organizational structures.

“Although a typical hierarchy tends not to change from year to year, the network can morph with ease. In the absence of bureaucratic layers, command-and-control prohibitions, and Six Sigma processes, this type of network permits a level of individualism, creativity, and innovation that not even the least bureaucratic hierarchy can provide. Populated with employees from all across the organization and up and down its ranks, the network liberates information from silos and hierarchical layers and

enables it to flow with far greater freedom and accelerated speed.”

Kotter’s method recognizes the desire for stability in hierarchical organizations like the Ontario public education system, while enabling the opportunity to create fast change through the strategic network side of the dual operating system. This is an ideal way to create change at a policy level, where public opinion (and staff enrolment) in new processes is crucial, but often is not informed about new research and ideas, and lags behind the need for change.

“The old methodology simply can’t handle rapid change. Hierarchies and standard managerial processes, even when minimally bureaucratic, are inherently risk-averse and resistant to change. Part of the problem is political: Managers are loath to take chances without permission from superiors. Part of the problem is cultural: People cling to their habits and fear loss of power and stature—two essential elements of hierarchies. And part of the problem is that all hierarchies, with their specialized units, rules, and optimized processes, crave stability and default to doing what they already know how to do.”

“Transformational societal change will depend upon our ability to change our ideas about change itself – how it manifests and how it can be initiated and directed.”

## AN INNOVATION AGENDA

I propose an innovation agenda that is built across the three horizons in order to support changemaking and to reflect the shifting social values and ideologies that may create barriers to change and turbulence in each horizon. This tiered approach to innovation would be better able to meet the needs for change while adapting to the variances that are unknowable within each of the horizons.

Horizon 1 ( from 2017-2028) Proposed Change Initiatives:

### **Integrating Social Supports in Schools**

- This could include opening doors to community non-profits, offering space to non-profits to operate within schools, operating community food bank hubs out of schools, running community programming in school buildings etc.
- This would support the ongoing drive to build schools as community hubs, where everyone in a community is welcomed to use this space (this is a current goal of the Ministry of Education), while taking some of the stress from teachers who are trying to support social need in students.

### **Introducing Design Education**

- Introducing design education into schools is a way of supporting system change. This could happen through the introduction and normalizing of design competencies to kids and staff through design based educational programming. This could be introduced into schools as short term, workshop based educational programming for kids and teachers that promotes the value of design as a key skill for the future.

### **Organizational Development for School Administration:**

- The suggestion here is to introduce the concept of integral theory and organizational maturity to school administration in order to build competencies for moving toward a less formal administrative structure. Recognizing that change will be difficult with administrators who are in leadership due to seniority and engrained beliefs about the role of schools, this initiative would seek instead to find agents of change within a system who are willing to be the voice for change over time.

## HORIZON 1

### VALUES AND IDEOLOGY:

Contributing to society is making and spending money.

Facts are true (and make us feel safe).

Different is uncomfortable

### CHANGE INITIATIVES:

Social supports into schools

Schools as community hubs

Design as a skill for supporting system change

Organizational development for school administration  
(beginning the shift toward moving to teal)

### INNOVATION OPPORTUNITY:

- Encouraging creativity and critical thinking skills in students through incorporating design training in education
- Incorporating design education into teacher training
- Creation of design-based “Education Innovation Lab” for system innovation, development of interventions and testing
- Development of Ontario personalized learning metric (personalized aptitude and experience based learning assessment tool)
- Development of Ontario student well-being personal assessment
- Creation of parenting education and kids programming to support creativity and critical thinking, democratic values



## Opportunities for Innovation in Horizon 1:

### **Development of Design Education Programming**

- Encouraging creativity and critical thinking skills in students through incorporating design training in education
- Incorporating design education into teacher training

### **Creation of design-based “Education Innovation Lab” for system innovation, development of interventions and testing**

- A space where system change is made through projects targeting specific needs in the system. This space would provide an opportunity for testing new interventions prior to implementation in order to maximize optimized programs and ideas that get implemented at scale through the system.

### **Development of Assessment Tools for Schools**

- Development of Ontario personalized learning metric (personalized aptitude and experience based learning assessment tool)
- Development of Ontario student well-being personal assessment

### **Development of Programming to Support and Nurture Critical Skills for the Future**

- Creation of parenting education and kids’ media programming to support creativity and critical thinking, democratic values (This is an opportunity to leverage TVOntario, which is owned by the provincial government and has an educational programming mandate).

Horizon 2 ( from 2028-2040) Proposed Change Initiatives:

### **Play-Based Learning as a Norm**

- Play based learning will be integrated into most younger grades at this point, and this supports a move to a “facilitated education” model rather than a classroom model of learning. This would enable the rethinking of teachers as designers of educational experiences rather than instructors

### **Schools as community supports**

- The role of schools in communities is reshaping and by encouraging more open doors, less restrictive rule-based administration and more integration with community, schools could begin to see more vitality (and possibly income from space rentals and low cost community support) within the building.

### **Student-led learning**

- New assessment methods and a drive for student well-being would mean that more students could be able to prove their learning through personally driven, interest based learning pathways, and through less traditional methods. By developing methods to measure changing abilities rather than acuity at specific subjects, this change initiative would mean that schools would be open to providing access to many different activities and methods of learning that didn't

## HORIZON 2

### VALUES AND IDEOLOGY:

Contributing to society is doing good for others.

Facts are constructed. Truth might shift.

Different is happening.

### CHANGE INITIATIVES:

Play based learning

Schools as community supports

Student-led learning

Diversified teaching staff (include non-traditional candidates)

Increased community involvement in school administration

Organizational development for school staff (moving to teal)

### INNOVATION OPPORTUNITY:

- Implementation of “Community Support Advisory Board” for individual schools to support the move toward community governance and ownership models
- Ongoing support of parenting education and kids programming to support development of creativity and critical thinking abilities, promote democratic values

require specific instruction from an OCT certified teacher. Student-led learning could also mean that we release the need for age and grade structures, and we invite learners of all ages to use the space for multiple uses through the day and night.

### **Diversified teaching staff (include non-traditional candidates)**

- If we are able to measure learning differently, we can rethink what a teacher's role might be. Play based learning opens up teaching to people with different skills, people with unique abilities and interests and non-traditional "teachers". This would support increasing diversity of thought, it would support the need for more staff in a building to support student safety and it would enable OCT certified teaching staff to focus on the design and support of student learning experiences.

### **Increased community involvement in school administration**

- Opening schools as community spaces means the need for more support in operations and governance for the building. This would require a change in governance that reflects the building as a community learning space rather than as a school for children of specific ages.

### **Organizational development for school staff (moving to teal)**

- Again, this is about finding agents of change in the system who are willing to support a move to a less hierarchical and more inclusive structure of administration. This move would need to be supported in HR choices at a Board level, and would be supported by the agents of change within leadership.

## Opportunities for Innovation in Horizon 2:

### **Implementation of “Community Support Advisory Board” for individual schools to support the move toward community governance and ownership models**

- This brings community governance to the system (at a much smaller scale than the current Trustee model) through the development of a community support advisory that has interest in the community and in the activities within the building. This could include parents, local business owners, people who use the non-profit community supports in the building, students etc. The idea is that the space begins to feel like a community owned entity.

### **Ongoing support of parenting education and kids programming to support development of creativity and critical thinking abilities, promote democratic values**

- Continued parenting education and kids’ media programming to support creativity and critical thinking, democratic values (This is an opportunity to leverage TVOntario, which is owned by the provincial government and has an educational programming mandate).

Horizon 3 ( from 2040) Proposed Change Initiatives:

### **School buildings as community owned centres for learning**

- School buildings are owned and governed by a co-op of community members and families who hold stake in the running of the building and who govern the operations of the site. Within the building, there are community services, educational activities and opportunities for learning and sharing, technology for renting etc. The space supports community (in the way that churches used to, but regardless of your beliefs) and is meant to support the personal well-being and group sustainability of the multiple learning webs that operate through the community.

### **Schools as spaces for supporting social processes and developing networks for learning**

- School buildings operate as community learning hubs where the personal and group development and community sustainability are the mandate. This means that the offerings should support the on-going process of supporting democracy and positive social interactions through the development of social capital with all members of community. This means that this initiative supports empathy building and social interaction (at a time when these skills are no longer ingrained in our development). This also means that these hubs operate as spaces where learning webs - the groups that support development and growth through collective neuro-cognitive processes - can learn human interaction skills for better team cognition and to develop the ability for engagement in online spaces.

## HORIZON 3

### VALUES AND IDEOLOGY:

Contributing to society is bringing my unique value as an individual to collaborative neurocognitive processes.

There are many versions of the truth. Facts are coloured by the observer. There is no way to divide the observer from the observed.

Different is valuable.

### CHANGE INITIATIVES:

School buildings as community owned centres for learning

Schools as spaces for supporting social processes and developing networks for learning

### INNOVATION OPPORTUNITY:

- Offering social development supports for people to learn how to navigate face to face interactions
- Offering education opportunities through developing highly diversified and unique “webs” of knowledge
- Creation of spaces with “no-tech” enabled zones for community experiences as humans

## Opportunities for Innovation in Horizon 3:

### **Offering social development supports for people to learn how to navigate face to face interactions**

- This could be opportunities to interact in a safe and fun way that teach people how to make friends, how to talk to strangers, how to recognize kindness etc. This supports the drive for human connection in an environment where we don't have to ever meet face to face if we choose.

### **Offering education opportunities through developing highly diversified and unique “webs” of knowledge**

- Diversity of thought is key to rich collective neuro-cognitive processes. Offering unique and diverse opportunities to join collective processes encourages more diversity and supports the development of a community. These webs of knowledge could be highly selective, and could offer distinct opportunities and access to diverse learners (this is an opportunity for people who think differently to be highly desirable parts of groups by offering new and different ways of approaching problems - it could make someone with mental illness or brain injury a highly sought-after member).

### **Creation of spaces with “no-tech” enabled zones for community experiences as humans**

- Spaces that are free from technology will be spaces of luxury, and offering a place for uniquely human interaction that is outside of technological intervention will be an opportunity that is unique and highly sought after. Combined with human interaction, this would offer nostalgia as well as personal development opportunities.



# CHANGEd

## SHIFTING ROLES FOR A NEW MODEL OF EDUCATION IN ONTARIO

### THE ROLE OF A STUDENT



#### CURRENT

- Learn
- Develop Skills for Employment
- Demonstrate Knowledge
- Meet Curricular Goals
- Complete Assessments
- Conform to Social Norms
- Build Social Network

#### 2040 MODEL

- Learn
- Teach
- Develop Skills for Well-Being
- Support Knowledge Building in Others
- Assess Personal Learning
- Develop Personal Learning Plan
- Build Social Network
- Support Collaborative Cognitive Processes
- Identify Unique Personal Traits

### THE ROLE OF A TEACHER



- Teach
- Deliver Curriculum
- Assess Learning
- Maintain Class Discipline
- Support Learning Environment
- Meet Administrative Needs for Student Safety and Proof of Learning

#### 2040 MODEL

- Design Opportunities and Experiences for Supporting Student Learning Goals
- Support Skill Building for Student Well-Being
- Support Knowledge Building in Others
- Build Social Network
- Support Collaborative Cognitive Processes
- Identify Unique Personal Traits
- Support Social Processes for Student Learning

### THE ROLE OF A COMMUNITY



- Support Student Learning
- Provide Employment
- Engage with School for Events

#### 2040 MODEL

- Support Community Learning Goals
- Support Skill Building for Community Well-Being
- Provide Opportunities for Collaborative Cognitive Processes
- Support Social Processes for Community Learning
- Maintain the Educational Space
- Govern Educational Processes
- Provide Social Support to Community

By addressing the needs to:

- Change measurement and assessment practices to include a more personalized metric and student assessment of experience over curriculum and age based skill expectations
- Recognize the value of critical thinking and creative thinking and adopt student-led learning practices
- Provide social support and manage inequity through changing hiring practices and developing community “plaza” models for schools
- Move toward a more “green” egalitarian model of organizational structure and culture
- Create an educational innovation unit where initiatives could be tested on small scales to ensure success prior to public introduction

within the context of the values and ideological change mapped in the transformation grid,

I believe that the Ontario public education system would be enabled to better succeed at transforming over long horizons to better support the changing needs of Ontario’s learners.

## CONCLUSION

The current state of the Ontario public education system is seen as successful for learners given the measures we have in place. The system, however, is not optimized for change in order to address the needs of the future.

Schools in Ontario started as places for small communities to send their children in order to learn the skills they needed to work and earn, as well as to protect, support and develop the province.

Foresight trends and current behaviours show us that people are accessing skills-based learning at a pace and scale that far outweighs what is available in the classroom. We don't, however, have a formal structure that supports humanity, where we learn to interact with people who are different from us, where we can collaborate with others, where we learn to value diversity of thought and where we are supported to become our best individual selves and our most engaged social selves . Ontario's public education system can fill this need.

Using CLA in the examination of social and political systems was ideal for determining how we might make large scale change over time horizons while considering public opinion and the use of myth/metaphor for wide scale adoption of change. Using the historical perspective to determine the myth and metaphor that created the system helped to uncover current operationalized orthodoxies that need to be adjusted in order to bring change. I believe that including a 4th horizon - as the force that

underlies the creation of the system, was beneficial in understanding how and why this large scale systems behaves the way they does. This horizon represents a great deal of the infrastructure that underpins the system, and its analysis helped to uncover systemic norms that may work against the required change.

By using the forces that are already at play in the system, we can adapt change to feel natural rather than imposed. The adoption of the dual operating system method for introducing change is presented as an ideal way to introduce innovation into a hierarchical system that is optimized to resist novelty. This system helps small scale change efforts over time in order to introduce change without negatively affecting public opinion and to ensure staff and stakeholder enrolment.

## BOUNDED TEMPORALITY

During the course of writing this paper, I noted how frequently we've moved into an unknown future carrying the wisdom of the past. This wisdom has both held us back and supported moving forward. It has held us back through forming a limited view of the future, and helps us move forward in that our old knowledge supports a scaffolding effect in the development of new ideas.

I am interested in learning more about how our timeframe might both support and limit our future. I am also interested in learning more about how what we believe to be acceptable is limited by our current timeframe, and how we might move toward an optimal future by being less tied to the past and more easily adopting new ideas.

In his 1957 paper, Herbert Simon identified an economic concept called Bounded Rationality. In this work, he finds that decision making is limited by the amount of knowledge available to the decision maker, the limits of their ability to process the information and the limited amount of time that is available to the decision maker to make the decision. It is because of these factors that humans often make suboptimal decisions, based in heuristics and limited to satisfying the need for "better", without maximizing possible value. (Simon, 1990, p. 16)

This theory of bounded rationality seems to apply to time-focussed decision making as well. I suggest that the decision making ability (and ultimately, the adoption of ideas) of people is also limited by the understanding of what is acceptable within the binds of temporality in which they are working.

Frameworks for the acceptance of ideas and policy-making seek to explain how ideas are spread over time.

One controversial model for the acceptance of ideas for policy making is the Overton Window, a framework developed by Joseph Overton of the Mackinac Centre for Public Policy to explain how public discourse shapes policy making. (see Figure 22) “The Overton Window” suggests that public policy is shaped by ideas that meet a politician’s approval requirement of being readily acceptable on a mass scale (ideas that have become “popular” opinion). This idea has been taken up by the American media as a theory that serves to explain how the country got to their current political state.

The window is meant to frame popular opinion on what is acceptable or not acceptable, and politicians who seek to be elected with policies that fall outside of the window either need to be very persuasive and visionary, or they will not be voted in to office.

(Lehman, 2014) Blogger Josh Trevino added the scales of acceptance to the window of ideas to show the shifting landscape of what is acceptable within the window. This scale indicates that what easily becomes policy is only that which is already a popular idea.

Another framework of the diffusion of ideas is Rogers’ adoption curve. This curve is meant to show the adoption of innovation over time, with

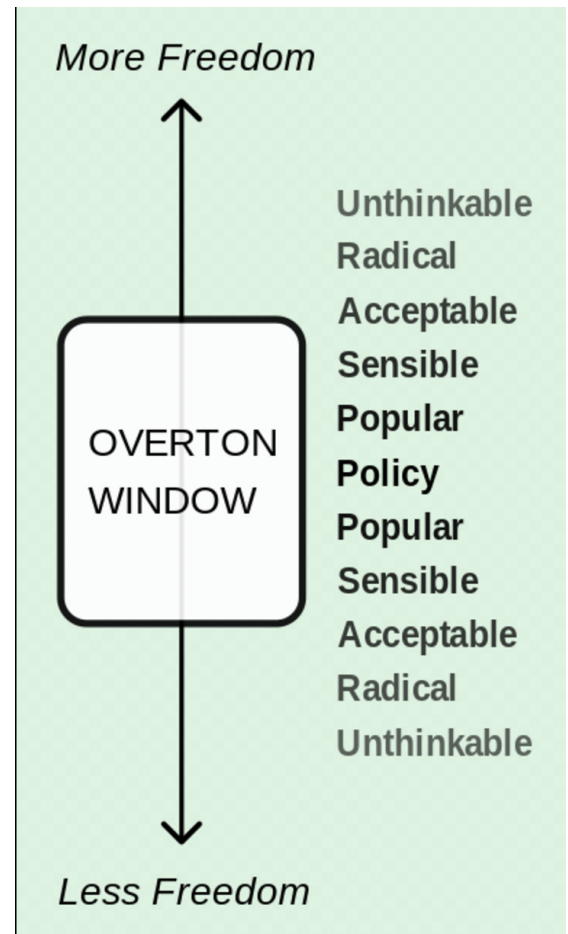


FIGURE 22, Overton Window  
Image Source: [www.mackinac.org/12481](http://www.mackinac.org/12481)

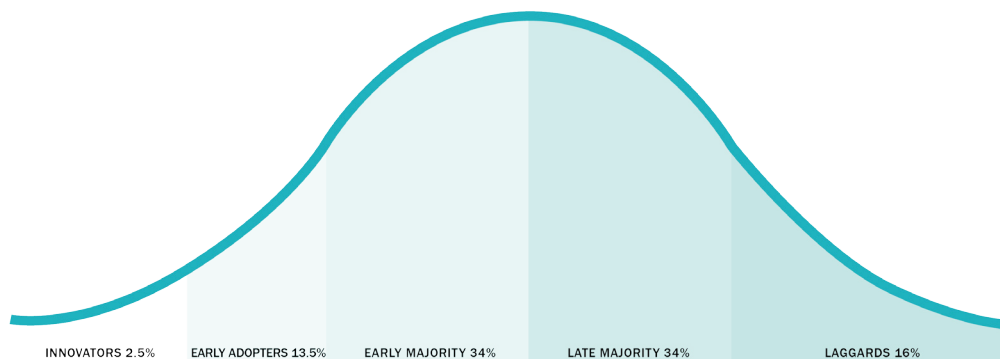


FIGURE 23, Rogers' Innovation Curve

new innovations being taken up by innovators first, then early adopters, the early majority, late majority and finally laggards. This model was created to explain the adoption of innovation, but is often used to explain the adoption of ideas that shape social behaviour. Looking at this model, we see that ideas that are at a mid point of acceptance only have about 50% adoption within the public sphere, with the other 50% coming in the later half of the curve. This model illustrates the differing social acceptance levels to new ideas, and the way that new ideas are introduced into a population.

Finally, Stewart Brand has adapted Frank Duffy's concept of "Shearing Layers" or "Pace Layers" which indicate "several layers of longevity" at which change happens at different timescales. (Brand, 1994) Brand posits that change happens fastest in fashion and commerce, and that the pace of culture and nature are the slowest to change. He describes the model by saying, "The fast parts learn, propose, and absorb shocks; the slow parts remember, integrate, and constrain. The fast parts get all the attention. The slow parts have all the power." This model illustrates change at a systems level, showing which systems are most able to incorporate change over short and long periods of time.

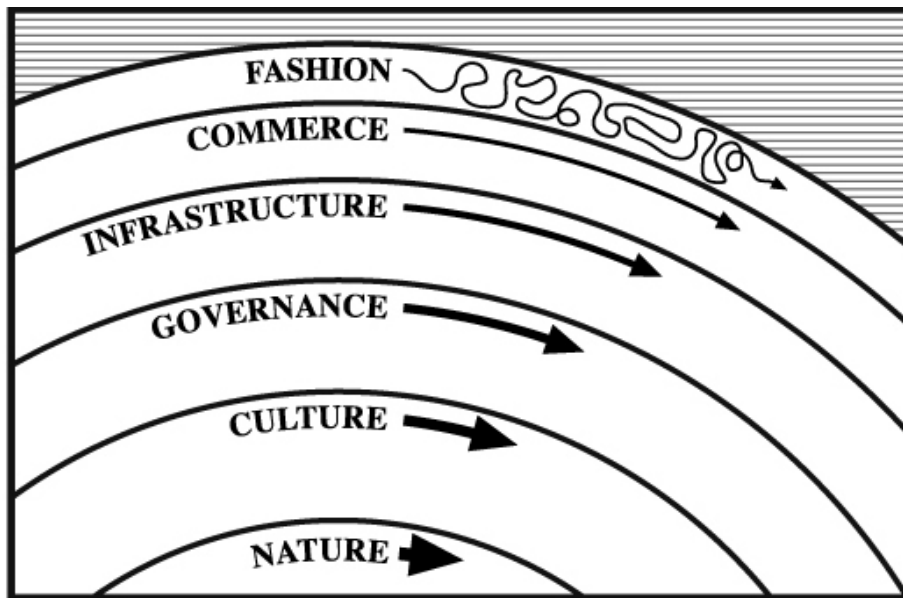


FIGURE 24, Pace Layering

Image Source: Pace Layers, from Brand, S. *The Clock of the Long Now* (1999), p. 37

Retrieved from: [blog.longnow.org/02015/01/27/stewart-brand-pace-layers-thinking-at-the-interval/](http://blog.longnow.org/02015/01/27/stewart-brand-pace-layers-thinking-at-the-interval/)

All of these models of change adoption over time reflect different scopes and scales of change, but all have something in common with the work that we do in foresight. This is the idea behind bounded temporality.

Our decision making ability is limited by the complexity of the problem, **our current frame of what is acceptable as knowledge (what's not weird)** and the time horizon at which we are making the decision.

This explains in part, why we don't often look to harvest old work to find new answers to problems. We tend to write off old knowledge and methods and seek innovation as a rewrite - but we minimize the value of bringing wisdom of the past forward, and we fail to harvest ideas from old work because we don't see utility in things that were once deemed "old" or irrelevant.



Being bounded by temporality in decision making limits our ability to make good decisions and can add inefficiencies into a system by refusing to revisit work that has been done in the past. When we label things as “old” we tend to see them as having lost utility value. When we label things as “young” or “new” we tend to see them as having not yet reached their full utility. This language limits how we behave as a society and limits the structures of foresight and innovation.

This idea is evident when we look at ideas of the future from the past. Errors of cultural and social significance can overshadow the information that has value. (See figure 25). Figure 25 is an image of the future from German Margarine advertising cards from 1930. We see people engrossed in using devices that appear to mimic the smartphone’s abilities while seated together at a cafe table. This is a remarkably accurate depiction of what life is currently like. The fact that they are dressed in strange aviator style clothing and are smoking cigarettes makes the image appear



FIGURE 25, The Future from the Past  
Image Source: From “Echte Wagner Album Nr. 3”, Series 12 and 13, ca. 1930.  
Retrieved from: [http://www.retro-futurismus.de/sammelalben\\_zf.htm](http://www.retro-futurismus.de/sammelalben_zf.htm)

naive and humourous, breaking the “willing suspension of disbelief” that supports our acceptance of ideas and stories.

Bounded temporality - holding the idea that there is a “right” way of believing and behaving (which is grounded in what is right and true at the time of the foresighter’s activity) limits us to shaping a future that isn’t optimal. It limits the boundaries of what we see as possible, and it limits how we interact with each other.

This can limit the work of foresight practitioners who are contracted by organizations who have a need for public approval. It means that we must consider what is “right” and “true” within the scope of the bounded temporality of the governors of the organization.

This bounded temporality also limits what we believe is right and true in our current world. It makes us believe that what exists as acceptable now (that we don’t recognize as norms or even question) will continue on into the future (like smoking as a social activity was to the Figure 25 artist in the 1930’s). This can blind us to possible disruptions to what we see as stable, whole and complete.

This also means that what we view as acceptable as knowledge keeps us from recognizing where we are making mistakes about the future.

It makes us have an age bias when we consider who has knowledge and value in contributing to society.

Bounded temporality means that we see kids as “developing” rather than being whole complete humans as they are. This affects how we treat

children and what we believe they are capable of doing. The reality is that children are exceptionally valuable thinkers who are unlimited and unbounded by many norms and ideas that limit creative and critical thinking. We would be better served by recognizing this on a larger scale.

There is utility value in older populations. This group has a breadth of experience and they are often the people who understand the political and cultural levers that have stopped innovation in the past.

Bounded temporality limits what we value by holding what is acceptable within a limited frame. It makes us see things as “weird” or “old” or “new” and it means that we don’t optimize the information that is available to us.

This is the reason that so many people who are outside the context of organizations are changemakers. Those who are within the organization are limited by the bounded temporality of that organization. Many disruptive changemakers over time have come from outside to bring needed change. Aristotle was seen as a disruptive changemaker. Galileo was jailed for his heresy. Jane Jacobs came from outside of urban planning, Lois Gibbs was a homemaker who led the neighborhood of Love Canal in the uprising against the government and the chemical company who poisoned their land. Changemakers are often outside of the temporal spectrum of what is acceptable. Disruptive change seems to come from people who are willing to question the limits and scales of bounded temporality.

I believe this idea could benefit from further research in order to support more in-depth strategic foresight and innovation in organizations.

Further research could focus on the use of a multiple timescales model for policy building and adoption, using historical scanning and multiple horizons for shaping foresight and developing a more reflexive foresight strategy that integrates time based learning to correct for errors of temporality. There could also be research into the use of fringe ideas for shaping future policy in order to prepare governments for upcoming disruptive shifts of a social and cultural nature.

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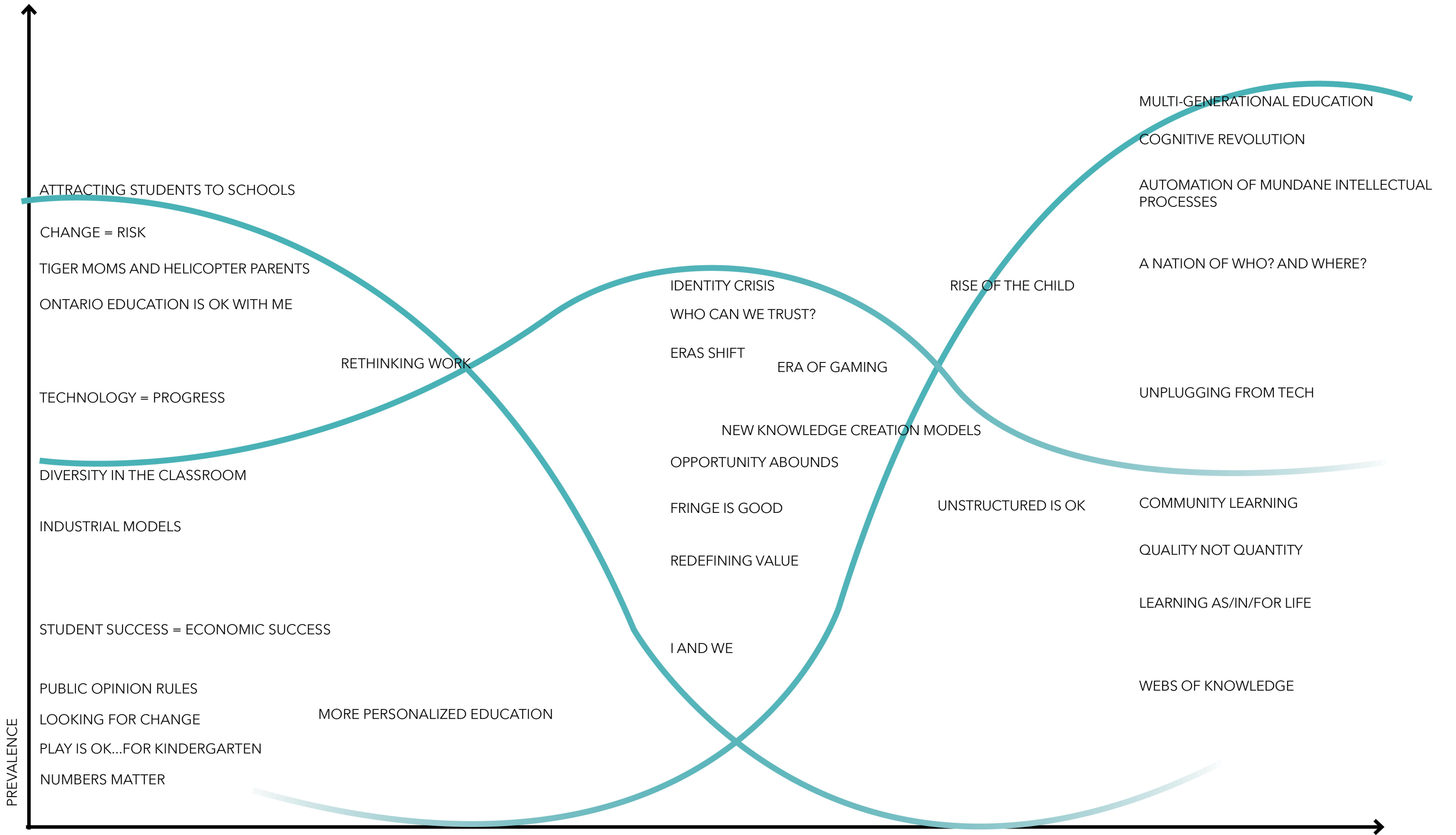
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## APPENDIX



ATTRACTING STUDENTS TO SCHOOLS

CHANGE = RISK

TIGER MOMS AND HELICOPTER PARENTS

ONTARIO EDUCATION IS OK WITH ME

RETHINKING WORK

TECHNOLOGY = PROGRESS

DIVERSITY IN THE CLASSROOM

INDUSTRIAL MODELS

STUDENT SUCCESS = ECONOMIC SUCCESS

PUBLIC OPINION RULES

LOOKING FOR CHANGE

PLAY IS OK...FOR KINDERGARTEN

NUMBERS MATTER

MORE PERSONALIZED EDUCATION

IDENTITY CRISIS

WHO CAN WE TRUST?

ERAS SHIFT

ERA OF GAMING

NEW KNOWLEDGE CREATION MODELS

OPPORTUNITY ABOUND

FRINGE IS GOOD

REDEFINING VALUE

I AND WE

RISE OF THE CHILD

UNSTRUCTURED IS OK

MULTI-GENERATIONAL EDUCATION

COGNITIVE REVOLUTION

AUTOMATION OF MUNDANE INTELLECTUAL PROCESSES

A NATION OF WHO? AND WHERE?

UNPLUGGING FROM TECH

COMMUNITY LEARNING

QUALITY NOT QUANTITY

LEARNING AS/IN/FOR LIFE

WEBS OF KNOWLEDGE

TIME  
APPENDIX A: Three Horizons

HORIZON 1 TRENDS	HORIZON 2 TRENDS	HORIZON 3 TRENDS
<b>ATTRACTING STUDENTS TO SCHOOLS</b> Demographic shifts mean fewer students at schools and more parental choice.	<b>IDENTITY CRISIS</b> With increasing access to artificial intelligence, we begin to question where technology ends and humans begin	<b>UNPLUGGING FROM TECH</b> Fast change brings a sentimental response to nature and “before” while evolving technology to promote those things
<b>TIGER MOMS AND HELICOPTER PARENTS</b> Higher parent involvement in kids’ education and a trend toward more parent involvement in school operations.	<b>PEOPLE POWER</b> A backlash against jobs losses from increasing automation leads to a people focussed movement that seeks to highlight the value of being human.	<b>RETHINKING WORK</b> Work is changing to a gig-based on demand model, and we are changing how we think about work.
<b>TECHNOLOGY = PROGRESS</b> Schools see increased use of technology as preparation for the future and making progress for future employment.	<b>WHO CAN WE TRUST?</b> Shifting governments and increasing engagement in virtual game-based environments leads society to begin to question who is in charge and who represents our best interests.	<b>NEW KNOWLEDGE CREATION MODELS</b> There are lots of ways to get access to information that you need to learn skills.
<b>ONTARIO EDUCATION IS OK WITH ME</b> Ontario fares well globally in reports on quality of education based on standardized testing scores. Parents approve of EQAO measures as a method of determining quality of schools.	<b>ERAS SHIFT</b> A major shift of eras and major understanding of this era as the “Anthropocene” where humans have altered the earth in irreversible ways	<b>ERA OF GAMING</b> More processes of living are completed through game based mechanics, technologies and virtual spaces
<b>DIVERSITY IN THE CLASSROOM</b> Higher immigration levels, demographic shifts and more inclusive education means more diversity of thinkers in the classroom.	<b>A.I. OVERLOAD</b> I is everywhere and we live with the reality of the change of lifestyle that it creates.	<b>COGNITIVE REVOLUTION</b> The new ways that we live and work require changes in how we think. Fast uploads of skills through implantation and brain mapping to show learning are realities.
<b>PERSONALIZED AND SPECIALIZED EDUCATION</b> More Independent Education Plans, Differentiated Instruction and recognition of diversity of learners in Ontario classrooms.	<b>FRINGE IS GOOD</b> We recognize that difference is beneficial due to the increasing amount of artificial intelligence that guides our lives. We begin to recognize value in people who think differently and who have physical differences that make them behave differently.	<b>AUTOMATION OF MUNDANE INTELLECTUAL PROCESSES</b> More AI doing the work that people used to do, including “think work”.
<b>LOOKING FOR CHANGE</b> Public discourse on need for change in education is high, more parents are seeking alternatives to current education models	<b>OPPORTUNITY ABOUND</b> More time due to automation and more leisure with a balancing economy means that there has never been a time where there is more opportunity to make change for how we live. We see less value in making things and more value in guiding social behaviour to shape better human experiences.	<b>MULTI GENERATIONAL LEARNING</b> A trend toward deformatization from a shift to more network based ways of interacting means that we value children and we value their forms of learning and interaction differently.
<b>PUBLIC OPINION RULES</b> Recognition that public opinion drives votes means that decision making is contentious and short sighted.	<b>REDEFINING VALUE</b> We begin to question the idea of infinite economic growth and start to look for new ways to define value. We recognize the need for sustainability.	<b>RISE OF THE CHILD</b> A trend toward deformatization from a shift to more network based ways of interacting means that we value children and we value their forms of learning and interaction differently.
<b>INDUSTRIAL MODELS</b> School is seen as a place to develop earners, not learners.	<b>I AND WE</b> We see the importance of truly knowing who we are as individuals, as well as recognizing our place as part of a system. We recognize the need to support community AND personal well-being.	<b>A NATION OF WHO AND WHERE</b> Blurred lines from immersion in global game based environments, increasing globalization and precarious values.
<b>STUDENT SUCCESS = ECONOMIC SUCCESS</b> School is seen as a place to develop earners, not learners.		<b>COMMUNITY LEARNING</b> Learning that leads to self actualization activated through a group that supports development for all members.
<b>NUMBERS MATTER</b> We value quantitative measure over qualitative measure.		<b>LEARNING AS/IN/FOR LIFE</b> Rethinking learning as a process of everyday living changes how we view education.
<b>PLAY IS OK FOR KINDERGARTEN</b> Transition to full day, play-based education is seen as successful in public discourse.		<b>QUALITY NOT QUANTITY</b> Advances in computing allow for measurement beyond numbers.
<b>CHANGE = RISK</b> Change is slow but there is progress. Few risktakers in the system and the system doesn’t support risk - people don’t want their kids’ education to be a testing ground.		<b>UNSTRUCTURED IS OK</b> A move away from determined pathways and pedagogy to a freeform selective education ideology
		<b>WEBS OF KNOWLEDGE</b> Recognition that human abilities are what will enable our futures means we value our unique human abilities more.

