



Measuring What Matters

Progress report

Phase 3: 2015–2016

November 12, 2016



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Measuring What Matters

People for Education—working with experts from across Canada—is leading a multi-year project to broaden the Canadian definition of school success by expanding the indicators we use to measure schools' progress in a number of vital areas.

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1. Overview

The initiative

In a call to action, People for Education launched the *Measuring What Matters* (MWM) project in 2013. MWM is a multi-year initiative to build consensus and alignment around broader goals and indicators of success for public education.

To accomplish the project goal, People for Education has engaged partners from universities, foundations, and government, as well as education stakeholders from across Canada. An expert Advisory Committee and three smaller working groups in key areas are also making critical contributions to the project. The emerging MWM model, including a set of core competencies and conditions and assessment models, is being field tested by educators in schools and classrooms across Ontario. Based on their feedback, and feedback from consultations, the model will be updated and refined.

The context

Currently, the world is facing challenges in many areas, including wealth disparity, climate change, food security, mass migration, health, gender equality, and stagnating and uneven economic growth.¹ In order to address the challenges of tomorrow's society, young people need more tools than literacy and numeracy. Canada, specifically, is tackling complex environmental, social, and economic issues—a process which requires a variety of competencies, including collaboration, flexible thinking, communication, and information literacy.² Organizations and thought leaders across Canada and around the world are calling on schools to expand the discussion of “student success” to include a range of broad skills.³ In this project, People for Education—as a champion for public education and a hub of innovative research—is adding its voice to this movement for change.

The goal

The MWM theory of change posits that a renewed education model with broader, integrated goals and measures for student success, will support change both inside and outside the education system. The theory (and recent experience) suggests that policy and resource allocation in public education will shift to reflect these broader goals. Adopting a renewed model will compel the education system to provide the support, time, alignment, and capacity-building necessary to support educators in fostering their students' competence and skills in the domains of creativity, citizenship, physical and mental health and social-emotional learning, alongside numeracy and literacy. It will also require new ways to report to parents, students and the broader public about student and system progress in these areas. Over time, this will allow the system to demonstrate progress in these broad and essential areas of student success.

***Measuring What Matters* envisions a public education system that:**

- supports all students to develop the competencies and skills they need to live happy, healthy, economically secure, civically engaged lives; and
- strengthens Canada—our society, our economy, our environment—by graduating young people with the skills to meet the challenges our country faces.

This vision can be achieved by:

- setting broad and balanced goals for student success that include numeracy, literacy, creativity, social-emotional learning, health, and citizenship; and
- ensuring that these goals drive policy, practice, funding, and accountability.

The goal of the *Measuring What Matters* initiative is to collectively develop, test and propose a new model for education that:

- includes a concrete set of competencies and learning conditions in the areas of creativity and innovation, citizenship, mental and physical health, and social-emotional learning;
- proposes assessment / measurement strategies that focus on, and support these broad competencies;
- supports effective classroom and school practices in foundational areas proven to develop students' capacity for long-term success; and
- ultimately, informs a productive and useful way to provide parents and the broad public with understandable information about student and system progress in broad areas of learning.

The potential impact

Measuring What Matters is premised on the assumption that policy and practice in education systems is, to a large degree, driven by what the system holds itself accountable for and what is reported to the public. An effective model, that includes competencies and skills in a broad number of foundational domains of learning, will help to ensure that public education is preparing young people to lead happy, healthy, economically secure and civically engaged lives—no matter what their beginnings or their post-secondary destinations.

In its broadest vision, the initiative aims to build consensus around goals for schools and the education system that are aligned with those of post-secondary education and the world of work, and that answer society's need for an engaged citizenry with the capacity to solve complex problems and thrive in a rapidly changing world.

This focus on a broad view of student success also has the potential to foster cooperation between education and other sectors working to support positive child and youth outcomes. It can foster greater alignment in our goals for young people from Kindergarten through post-secondary education and on into the world of work and adult life and renew public confidence in the purpose and value of public education for youth and society.

2. Progress to date

Highlights 2013–2015*

Phase one of *Measuring What Matters* (2013–14) laid the foundations for the project. People for Education conducted a review of the research on broad areas of learning,⁵ and held public consultations through surveys and focus groups.⁶

In Phase 2 (2014–15), education experts were recruited to articulate each of the key domain areas, their importance in terms of student success, and some potential ways that they could be assessed.⁷ They conducted reviews of Ontario’s curriculum and policy to identify where and how each domain is currently recognized, and developed a preliminary set of core competencies, skills, and learning conditions for their domain. The competencies and conditions were viewed as foundational to all curriculum, including literacy and numeracy.

Phase 3: Key activities in 2015–16

1. Field testing

Field testing in classrooms and schools is a key element of the “proof of concept” approach of the MWM initiative. Through this research, the competencies and conditions are directly grounded in teacher, student, and school experience. In early 2016, People for Education engaged teachers and principals, as well as researchers, curriculum and program consultants, and senior school board leadership in the collaborative development of the field trials. The study included 80 educators in 26 publicly funded schools and seven school boards. (See section 3 for a preliminary analysis of the field trials to date.)

(*See appendix 1 for a summary of MWM activities and publications from 2013–16.)

2. Consultation on measurement

In early 2016, People for Education laid out the conceptual foundation of a whole-system approach to assessment and measurement in broader areas of student success. The scope of the envisioned model explored assessment at the classroom, school and board level, and examined possibilities for complementary jurisdictional-level measures. In the spring of 2016, People for Education convened a two-day consultation with 20 educational measurement experts, policy makers, and practitioners from across Canada to respond to both our initial thinking about whole-system measurement, and the preliminary observations from the field trials.

Participants shared useful research and engagement considerations for the field trials, and discussed a range of possibilities for future development and implementation of a competency framework. They recommended re-articulating the goals and the theory of change for MWM in ways that would recognize the long-term nature, and potentially far-reaching implications, of the proposed model. Participants also highlighted the complexity and inherent challenges that will be faced in any dialogue about measurement or about “what matters most.” They made clear that MWM is not only a research and proof of concept endeavor, but it is also a wide-ranging and value-laden conversation about what matters in education and, by extension, in society.

MWM involves taking two perspectives at once: a wide-angle view that encompasses the complexity of assessment/measurement in education and the range of contexts in which it happens, and a narrow focus on concrete, specific, teachable/learnable competencies, and practical, implementable approaches to assessment and measurement of these competencies. And all while acknowledging that in education, as in other areas of society, measures are always evolving, as priorities and the “art and science” of measurement evolve.

The consultation raised important questions and caveats to consider as the initiative moves into the next phase:

- How can we think productively about assessment/measurement, without creating an “accountability arms race”?
- What would support greater capacity across the system to enhance and further support work occurring in these broad areas?
- We need to ensure that equity is always front and centre.
- As we expand the project, how can we bring together diverse stakeholders in a constructive dialogue with People for Education and each other?

3. Leveraging research networks and partnerships

There are important initiatives underway, both in Canada and internationally, that are exploring broad areas of learning and the potential for broadening the goals and measures of public education. In 2015–16, People for Education was actively engaged in national and international conversations:

- People for Education co-convened an ongoing information and data-sharing round table of organizations and ministries doing research from a range of perspectives and using a range of metrics for youth success and wellbeing, in order to share knowledge and data, and seek opportunities for alignment. The roundtable partners include Ontario’s Ministries of Education and Children and Youth Services, UNICEF Canada, the Canadian Index of Wellbeing, YouthRex, and the Ontario Trillium Foundation.
- *Measuring What Matters* became a partner project in the J.W. McConnell Family Foundation’s WellAhead initiative, which aims to improve child and youth mental health by integrating well-being into school communities. This partnership helps to situate MWM’s work in relation to the expanding policy initiatives in Ontario and across Canada around well-being in schools.
- Discussions began with the Higher Education Quality Council of Ontario and York University to convene a cross-sectoral table to explore the alignment of approaches to core skills and competencies from K–12 through post-secondary and into the world of work and adult life.
- A developing research partnership with Ophea will explore links between the Healthy Schools Certification program and MWM-defined competencies.
- People for Education is participating in the 21st Century Learning group of the Association of Education Researchers in Ontario. This group is exploring the measurement and assessment of 21st Century competencies at school district levels.
- People for Education is participating in the UNESCO/Brookings Institution International Learning Metrics Task Force and in Skills for a Changing World, an international initiative facilitated by the LEGO Foundation to examine the impact of a focus on play-based learning, creativity and innovation, and student well-being.

3. The domains and competencies

Note: These descriptions represent the categorization of competencies within the domains at the time of publication of this report. People for Education continues to work iteratively with MWM domain leads and educators on revisions to the competencies, as researchers learn from the ways educators and students are using and understanding them on the ground through field trials. For the most up-to-date version of the competencies, see: www.peopleforeducation.ca

The school conditions and student competencies articulated in MWM represent the broad, foundational skills and practices that are critical for students to be successful in today’s society.

The skills and competencies in each domain are intricately connected to the quality of learning experiences, and to the supports available in classrooms, within the school, and in school–community partnerships. These are captured through a set of conditions for quality learning environments.

Creativity⁸

Creativity involves generating novel ideas or objects, as well as evaluating their worth by allowing one’s imagination to wander, being inquisitive, persisting when difficulties arise, collaborating with others, and being able to evaluate creative products, ideas, and processes objectively. Fostering creativity helps students develop resilience, resourcefulness, and confidence, and is positively linked to engagement, achievement, and innovation. Creative competencies and skills are vital for problem-solving and for developing ways of adapting knowledge to new contexts. These competencies and skills apply across the curriculum—from arts to science to math. They help to foster self-understanding and an appreciation of culture, and to build students’ capacities to imagine, persist and synthesize. The competencies and skills that support creativity are interrelated and influence one another.

Creative competencies are grouped into the following categories:

- Imaginative
- Inquisitive
- Collaborative
- Disciplined
- Persistent

Citizenship⁹

Citizenship involves a core set of knowledge, skills, capacities, and values that allow students to be responsible, active citizens in the diverse communities that they belong to, both within and outside the school. It includes the development of students’ understanding of social issues, along with the capacity to recognize and value different perspectives, and to understand the impact of their behaviour and decisions on others. Citizenship education supports students’ abilities to become contributing members of a democratic society—members who know how to affect change and why the process of affecting change is continually necessary within democracies.

Citizenship competencies are grouped into the following categories:

- Valuing and working with diversity
- Civic voice
- Awareness of power
- Decision-making

Health¹⁰

Health involves the capacity to adopt a healthy lifestyle from an early age, as well as the learning habits and skills that provide a foundation for mental and physical health. These competencies improve chances for academic success, and can reduce the risk of both chronic disease and mental illness. The whole school environment—including individuals and their relationships, the physical and social environment and ethos, community connections and partnerships, and policies—are important areas for developing students' health.

Health competencies are grouped into the following categories:

- Physical activity
- Well-being in sexuality
- Healthy choices
- Mental health and mental illness

Social-emotional learning¹¹

Social-emotional learning involves students' development of an accurate understanding of themselves and of the perspectives of others, and the skills required to manage their own learning and emotions. It also focuses on students' ability to develop and maintain healthy relationships, and their ability to develop appropriate strategies to solve problems, whether academic, personal, or social. These attributes are vital for students' long-term success.

Social-emotional competencies are grouped into the following categories:

- Self-awareness
- Interpersonal relationships
- Self-management
- Decision-making
- Social awareness

Quality learning environments¹²

Quality learning environments involve conditions in schools that provide a foundation for the competencies and skills in the four domains outlined above, and for all learning. In a quality learning environment: classrooms support a dynamic interrelationship between students, teachers, and content; the whole school mirrors ideals of citizenship in democratic societies, and supports social relationships characterized by trust, interdependence and empathy amongst all members; and school–community relationships focus on students' well-being, promote cross-cultural perspectives, and provide broader learning opportunities for students.

Conditions of quality learning environments are grouped into the following categories:

- Conditions in classrooms
- Conditions beyond the school
- Conditions in the school

4. Field trials 2015–16: What we're learning

In the winter of 2016, the MWM team began to field test the competencies and learning conditions developed through the initial research.

This ongoing case study seeks to integrate the MWM framework of competencies into existing educator and school practices in order to develop an understanding of viable approaches to both jurisdictional and local assessment and measurement in these broad areas of learning.

The study marks a critical shift for *Measuring What Matters*—from one largely substantiated in scholarship and research to one infused and integrated with practitioner knowledge and expertise. The information elicited from the field trials will deepen our understanding of system approaches to assessment and measurement for broader areas of school success.

The goal of the field trials is to answer three interrelated questions:

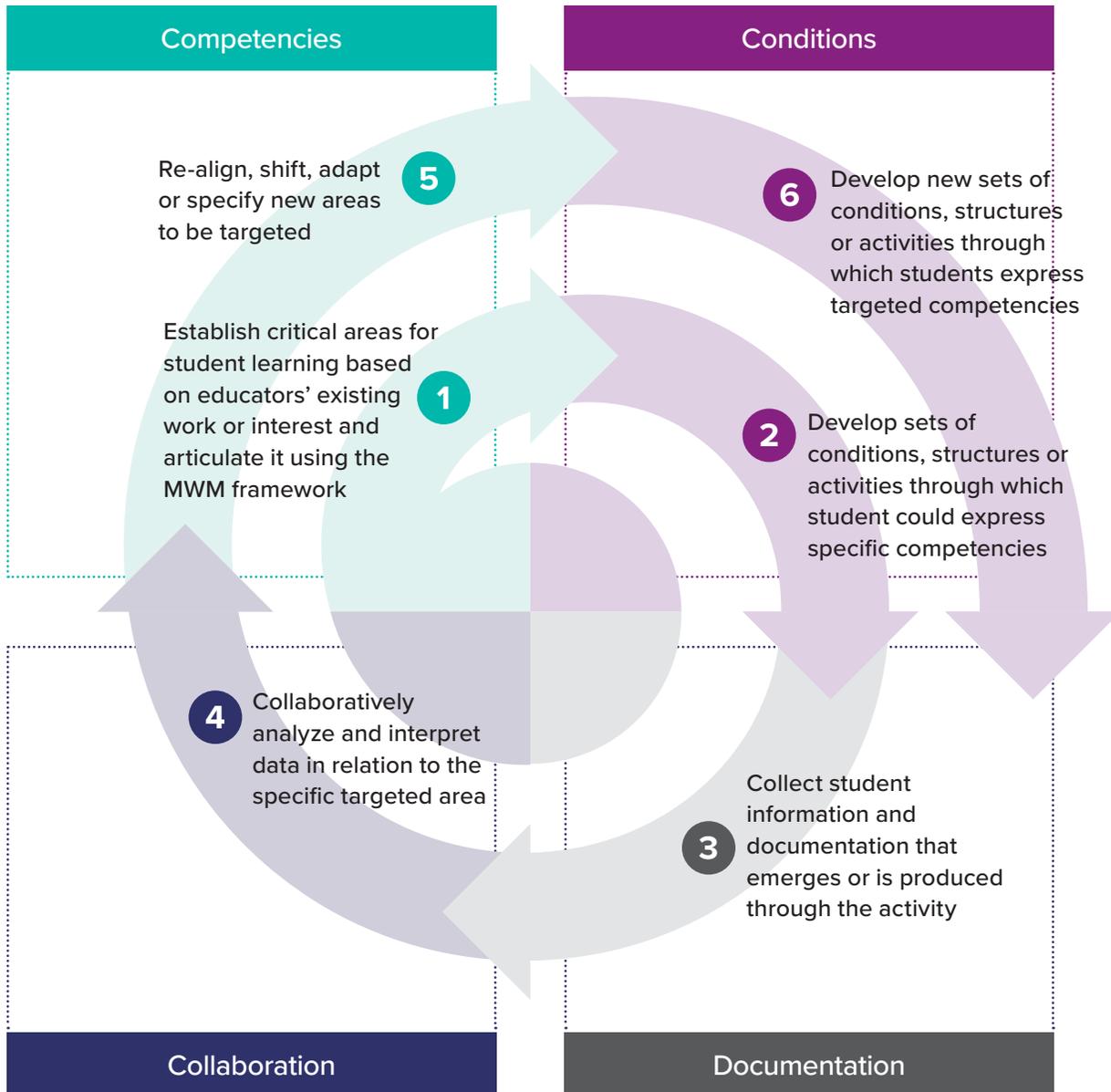
- 1. What are the implications of using the five domains—creativity, citizenship, social-emotional learning, physical and mental health, and quality learning environments—and related competencies and learning conditions, as a framing and evaluation tool?**
- 2. What are the interrelationships between and across the five domains, as expressed in school and school district practices?**
- 3. How do the definitions of the competencies and conditions articulated in the MWM framework translate into learning experiences in classrooms?**

The study included 80 educators in 26 publicly funded schools across seven school boards. Six of the participating sites were secondary schools and twenty were elementary schools. The schools in the study represented four regions in Ontario: south, north, central and west. Eight of the schools were from rural areas and eighteen were from urban areas. Three schools were Catholic, two were French public and twenty-one were English public. The participating educators varied in terms of what role they held and whether or not they embedded the MWM project in existing programs or initiatives.

The MWM researchers identified and recruited potential participants through existing contacts, looking for educators who wanted to take part, and who were already involved in existing collaborative environments. The sample of educators represented a “purposive and convenience sample,” as opposed to a strictly randomized or representative sample. The study is not focused on generating results that could be generalized to a whole population, but rather seeks to describe the story of what occurred when educators collaborated to evaluate select groups of MWM competencies in their schools and classrooms. This is an emergent study;¹³ it provides research narrative from educator experiences, rather than describing what occurred based on an existing expectation of what assessments might take place.

The process

While each field trial was unique in its structure, the process that participants undertook followed a fairly consistent set of phases, as represented in the diagram below.



The activities

Each school and field trial team designed and implemented a varied and personalized set of activities, which were integrated within their ongoing work, rather than designed as ‘additional’ to their existing work.

Activities ranged from math and drama collaborations, to participatory, school-wide Learning Walks. The table below articulates some specific examples.

Table 1: Examples of activities and their relevant domains

Examples of activities	Relevant domains
<p>In a secondary school applied program, a mathematics and English teacher-team explored the roles of conditions and constraints on idea generation in mathematics and English. They set a variety of conditions through which students generated new but related ideas to the topics at hand. They observed each other’s classes and collected information from the students’ responses.</p>	<p>Creativity Social-emotional learning</p>
<p>One elementary school principal in northern Ontario brought a school-wide focus on health to her community. Every morning began with an “active start,” where students kicked the day off with facilitated games and activities in the gym, rather than typical school announcements heard in their classrooms.</p>	<p>Health Social-emotional learning</p>
<p>A principal worked with school staff and students to co-write their elementary school’s code of conduct, which centred on three themes: respect, engagement, and responsibility. From there, teachers worked in Professional Learning Community groups to develop units and learning environments that showcased social-emotional learning competencies.</p>	<p>Social-emotional learning</p>
<p>A kindergarten teaching-team explored the role of play-based learning within the “imaginative” competencies area of creativity.</p>	<p>Creativity Social-emotional learning</p>
<p>One teacher stopped providing letter grades in her science class, instead focusing on rich descriptive feedback based on the competencies.</p>	<p>Social-emotional learning</p>
<p>A school coach and a teacher focused on student self-awareness and diversity of perspectives through an exploration of residential school experiences for Indigenous students.</p>	<p>Citizenship Social-emotional learning</p>

While the variation illustrated in these examples shows the broad application of the competencies to learning experiences for students in schools, it also presents challenges within the study in relation to the diversity of the contexts in which the competencies were used. The study addressed this diversity by using a common process of school and classroom assessment, which follows the Ontario Ministry of Education's *Growing Success* document.¹⁴

Specifically, educators focused on formative assessment, gathering information in diverse ways, in order to provide feedback and re-establish conditions through which students can progress in specific learning tasks, competencies or concepts.¹⁵ Formative assessment of these competencies occurred both at individual levels and in collaborative teams, depending on the school or school board site. The formative assessment process was not a discrete moment of assessment; it blended into the educators' planning and teaching. Counter to assessment as a single instant through which teachers analyze a set of data or information, this type of assessment involved adaptations in classroom or school conditions and activities in response to student learning.

The type of information gathered by participating educators was diverse, but sat in three large areas also outlined in *Growing Success*: observations, conversations, and student products.¹⁶ The following list is a sample of some of the evidence sources used by participating educators:

- Notes taken while observing student interactions
- Student work products
- Student self-reports
- Video recordings
- Formal and informal conversations between teachers and students
- Small-group discussion between and amongst teachers and students

The themes

Data from the field trials were collected through four means: observation, interviews, focus groups, and other artefacts (e.g. digital pictures and student work). Focus groups and interviews were recorded and transcribed, and observations were recorded in field notes and journals. All participant names are confidential, as are their schools and school boards.

Throughout the year, as the study evolved, emergent themes were used to inform new focus groups and interviews.¹⁷ A set of six preliminary themes have been identified:

1. Honouring teacher professional stewardship

2. Diverse and personalized approaches to assessment

3. Dynamic nature of learning conditions and student competencies

4. Interrelationships of competencies and domains

5. A specific lexicon or “language of learning” for broad but ambiguous areas of learning

6. Broadening perspectives on where learning occurs in schools

These preliminary themes serve as anchors to MWM’s continued partnership work with schools. They also provide critical insights into any potential jurisdictional approach to measuring broad areas of success, which, in Ontario, sit under policy umbrellas such as Student Well-Being or 21st Century Competencies.¹⁸

1. Honouring teacher professional stewardship

Participating educators found that the competencies resonated with work they were already focused on, or wanted to focus on, as core components of their teaching. There was some concern expressed about the notion of “measuring” students within the domains in MWM. However, the work itself, and the positioning of the work in relation to classroom and school assessment, by establishing specific opportunities for students to express specific competencies, was well received. The following excerpts were typical of the impressions that educators expressed:

“ [One teacher] commented last week [that] the competencies actually validated what she knew to be important in her heart. She works with kids who are identified [as having exceptionalities] and for the one or two students she focused on particularly, she was really looking to support their wellness... It made her feel that, ‘I always knew this is important, and now something is telling me that it’s okay to work this way; it’s not just about x, y, and z.’ (program coordinator) ”

“ ... for me it’s always, ‘How do I make this practical?’ I believe there is a sense of urgency in education. I believe it’s so important to bring those ideas to the centre of learning in our classrooms, but also in our schools, our boards and across boards... That’s why I love being involved in this group, because we do have the capacity to share with other boards. (school principal) ”

“ We have lots of frameworks, but [despite] the title, Measuring What Matters, I found it easy to put the ‘measuring’ aside. I am not quantifying, but trying to say, ‘If these are my goals that underlie what I do as a teacher, it isn’t about what [students] understand about seasonal changes in my science curriculum, it’s how they’re thinking critically and asking questions around those ideas within Science.’ I see it as a framework that gives greater purpose to what we are doing. And values the things we know are intrinsically important. (science teacher) ”

The ideas in relation to learning within the MWM project are not new to education in Ontario, nor are the competencies absent from Ontario curriculum and policy.¹⁹ What is new is the formal and systematic acts of focusing on specific, concrete areas within creativity, citizenship, social emotional learning and/or physical and mental health.

The work brought energy to teachers, and resonated with things they felt were central in learning experiences, but that often did not get the same amount of attention as academic achievement. In short, doing relevant and integrated assessment of these areas, often with students as co-assessors, was congruent with many participants’ professional values as educators. Sergiovanni speaks of educators’ roles as stewards—focusing on the responsibility these individuals hold for the development of children. Among the participants, the experience resonated with this sense of stewardship for students.²⁰

2. Diverse and personalized approaches to assessment

Educators took a range of approaches in their use of the MWM competency framework. Some took a more narrow focus, addressing one or two competencies in a single domain; others viewed their inquiry through combinations of competencies from several domain areas, e.g. citizenship, social-emotional learning, and creativity.

The critical moment for all came in the translation from a set of competencies in a domain to actual classroom and student experiences. While this “translation moment” was similar for all the participants, and the initial team-based discussions were helpful for diversifying, refining and broadening their perspectives, the methods each participant used varied widely. The individuality in what educators focused on, and how they investigated it, signals how personalized this work is. It also signals how important it is to protect non-standardized learning contexts, so that educators and their students can find the relevance of their learning experiences and processes within the sets of listed competencies and their associated domain areas.

“ I think [there are] multiple ways to engage in a relationship with these competencies: they could be my jumping off point and I start with them, or they might just come out at the very end and I lay them on [top]. It depends on... the questions I’m playing with [and] my wondering, my curiosity, leads me to connect with them... (school district coordinator) ”

“ One of the things that came out of this year is the different types of evidence that were used [by teachers]. [I] wouldn’t want a limiting structure; [maybe a] show of options versus structure. [For example,] ‘You need to bring something back—here’s what it could look like: narrative, survey pre- to post-, measurable “look fors,” frequency perspective, qualitative perspective.’ It depends on what aspect of program and competencies you are focusing on. (school principal) ”

“ I determined an entry point based on student emotional needs—big glaring challenges that were not addressed—elephant-in-the-room pieces no one wanted to address [such as the student’s] emotional needs. [I think] we are uncomfortable as a system in addressing [student] identity ‘issues’. (elementary school teacher) ”

3. Dynamic nature of learning conditions and student competencies

There appears to be an inextricable and dynamic link between learning conditions and specific competencies that students express: learning conditions frame and support the expression of specific competencies and, conversely, the focus on specific competencies in relation to teaching, learning, and assessment supports teachers in exploring a greater range of possible conditions and/or learning opportunities.

In the course of the field trials, the educators established conditions in the classroom to work on a specific competency or set of competencies. Then, in reaction to the quality of responses they got from students, the educators would often reframe the conditions. This opened the door for new possibilities in the learning experience.

For example, educators found the domain of creativity was a launching point for collaborative discussion about how to teach and scaffold creativity, and for self-reflection about the conditions in their classrooms that allow students to express specific competencies within creativity. Others puzzled out the problematic nature of “risk taking,” and its connection to exposure and identity for students. Students had very different feelings about the productiveness of taking risks in classrooms, and this diversity of opinions was often associated with their identity as students. This prompted teachers to examine the conditions of the classroom that allow their students to express and understand their identities, thus encouraging risk-taking behaviour.

“In the grade 1 and 2 classrooms, teachers were really curious about the [competencies in the] domain of creativity—specifically ‘students think flexibly’ and ‘students reflect on their own thinking process,’ and also [the condition in the Quality Learning Environment domain] ‘students are primarily driven by intrinsic motivation.’ That intrinsic motivation [condition] was of huge interest to the teachers. In our first conversation [they were] saying, ‘Is there anything I can do about that? Where does it come from? Can we actually facilitate that in the classroom? Can we change it? Does it have something to do with environment?’ (school district coordinator)

“I guess our observations have proved... that we both think there is a need for some scaffolding in order for students to begin their creative process. We wondered how much scaffolding is too much, because sometimes if you provide too much, then that shuts down the creative process. I think one big thing that we learned was that students need the vocabulary to be able to negotiate and show, or publish, their creativity and their ideas. (secondary school English teacher)

“I think [using the MWM lexicon] helped us learn about the [creativity] domain, because we were forcing ourselves to notice and name those [competencies]... Why aren’t we seeing and hearing them? Why might that be? Are there conditions that we need to change or reset so that we do see more of that? When didn’t we see that? Did we see examples of creativity? What was it about that moment—that lesson—that pulled that out? How can we get more of it? (school district coordinator)

4. Interrelationships of competencies and domains

From the earliest stages of establishing the domains and competencies in MWM, it was clear that there are strong interrelationships between the domains.²¹ These interrelationships were also evident across the work of the educators in the study.

One striking example involved work two educators did in an elementary school classroom to teach social-emotional competencies around self-awareness and the creative competency “uses metaphorical thinking” at the same time. The class used the metaphor of an iceberg to explore student personal identity and relate it to historical perspectives of Indigenous peoples in Canada. As they moved from their diverse peer and personal notions of identity to their study of what Indigenous identities and perspectives might be, given First Nations, Métis, and Inuit peoples’ historical, cultural and political realities in Canada, students further developed competencies in the citizenship and social-emotional learning domain.

“We wanted this whole discussion and thinking of identity to go beyond self and local communities. Our inquiries sat hard on First Nations. It’s interesting that as we explored First Nations’ history and current issues, the students began to talk about residential schools and foster children who are Aboriginal, and then make sense of them as individual children and their loss of language. ...interweaving notions between their own understanding of identity and the book [they read]. They wondered how the main characters were also [like them] struggling with identity and what [the characters’] ‘Iceberg’ might look like and what their own ‘Iceberg’ looked [like]. That was amazing. The intra[-personal] connections really deepened their thinking. This is a quote from one student talking about identity [reading from her observation notes], ‘I think we’ve been talking about identity, because we all have identity. We’re learning that some people have parts of themselves that they want to keep hidden and some people have the exact same parts that they want to reveal; reveal it all at the top of the Iceberg. The things that they want to reveal could be something like talent. Some people have a talent that they might hide all the way out at the bottom of their Iceberg.’
(elementary school teacher, program coordinator, and student)

”

The way that these competencies bled into each other within the learning experience was typical amongst the educators in the case. It illustrates the problematic nature of translating discrete, rational frameworks like MWM, into complex experiences. It also points to the importance of creating policy and institutional space to support professional autonomy, reflection, and exploration.

5. A specific lexicon or “language of learning” for broad but ambiguous areas of learning

Participants in the study noted how helpful it was to have a specific, common language in which to bind these complex areas of learning. The competencies gave educators clear pathways into actions and planning in classrooms. Competencies enabled meaningful and critical dialogue amongst educator teams within schools and across a wide array of contexts.

The specific language of the competencies created opportunities for educators to communicate with each other, to generate new conditions, and to make different meanings out of everyday classroom experience. Two different educators in the case share this as they reflect on their use of the competencies:

“... the domains and competencies really accelerated conversations [amongst educators]. The domains are the things that inevitably double up when we study the student learning experience, whatever the context is. With a lot of people context is the numeracy. Even though that might be where we start, [other] things come out like social-emotional learning and creativity. (program coordinator)”

“I sensed that [teachers on this team] felt that creativity was sort of this nebulous concept and [they thought,] ‘What does it look like in areas other than art?’ Then I was at their school with them a couple of weeks ago and it was interesting to hear how their thinking had evolved; that actually it’s not just this nebulous thing, it lives in so many different places and spaces and [the specific competencies] helped them name and unpack what it looked like and actually make connections to the curriculum. (program coordinator)”

In one field trial, the specificity of the language in the competencies provided common ground for a kindergarten teacher and three secondary school teachers (each teaching different subjects) to reflect together on their practices and their assumptions about their students’ capacities. Despite the differences in their subjects and the ages of their students, the teachers were able to dig deeply into the sometimes nebulous idea of creativity, by focusing on a single creative competency: “working without an end goal in mind.” The specificity of the language allowed the teachers to discuss how they would structure learning opportunities to develop this competency.

These examples illustrate the value of having concrete, specific language available to support educators working together within these broad areas of learning, in much the same way as they would discuss specific skills when working on mathematics or reading. The language allowed for deeper entry points in relation to discussions of pedagogy and learning theory. It allowed for cross-contextual understanding and dissonance, and provided a concrete means through which classroom micro-adjustments could be planned, documented, analyzed, and discussed.

6. Broadening perspectives on where learning occurs in schools

A number of schools in the study explored student experiences outside of the classroom. Here, perspectives on where learning occurs and what constitutes a learning experience for students broadened from specific, situated moments in scheduled classroom times to student experiences throughout the school day. One principal led her staff in shifting the school hallways and stairwells from age-segregated corridors to places where students from all grades represented their learning in relation to the domains (creativity, social-emotional learning, citizenship, and health). She states:

“What we’ve done is we’ve been working towards designating and labeling [different] school spaces [with each MWM domain]. Our decision was to take each area and link them. We’re going to use our staircases to link them. The primary [students] took on creativity. The intermediates really wanted social-emotional. The juniors wanted citizenship, and then right in front of the gym we have our health component. We’re trying to break down barriers to create a sense of community in our school. When you go down to creativity we will have examples from the intermediate [students’ work] in the primary spaces. We’re breaking down those paradigms of, ‘This is kindergarten alley and this kindergarten work.’ We want the kids to connect, but we also want the teachers to connect. (school principal)”

The interaction between school space and function, and the experience of school members—students, staff and community members—as they use these spaces, were central to how educators approached this aspect of the student experience in schools. One school explored traditional behaviour management practices in school—such as students lining up in the playground—as a reproduction of power relationships between students and teachers, rather than a logistical operation for managing order. Power relationships fall into both the citizenship and the quality learning environment domains, meaning that this behaviour became an opportunity for learning among teachers and students. Another secondary school introduced couches in school hallways as an experiment to study informal social relations among students and educators.

The exploration of student, staff and community member use of the school’s various organizational and functional structures allowed for new or different approaches to thinking about the qualities of learning moments, where and how they occur. Ultimately, these approaches helped re-frame the overall purpose and function of the school in ways that privileged learning as a socially constructed, continuous experience occurring not only in formal classrooms, but across the school, throughout the day, and beyond.

5. Next steps

Key activities for 2016–2018

Field trials will be completed during the 2016-17 school year. During that time, People for Education will convene expert working groups to further develop the *Measuring What Matters* model in the areas of classroom practices, equity in education, and assessment/measurement. In the spring of 2017, a series of *Measuring What Matters* discussion papers will be released, outlining the elements and implications of the proposed model, based on the research and consultation that has been done to date. This will form the basis of a further series of consultation and dialogue activities with key education stakeholders. A final version of the proposal for a new model for education will be released by the spring of 2018.

2016–17	2017–18
<p>Field trials</p> <ul style="list-style-type: none">• Continue and expand field trials• Develop final case study report on field trials	<p>Consultations</p> <ul style="list-style-type: none">• Hold consultations on key questions resulting from the MWM discussion papers.
<p>Assessment/Measurement model</p> <ul style="list-style-type: none">• Ongoing work with existing and new partners provincially, nationally and internationally• Work with advisors on: equity in education, measurement, classroom based assessment• Publish MWM discussion papers outlining key findings• Publish field trial case study report• Ongoing consultation with key education stakeholder organizations: teachers, principals, board staff and leadership, trustees, student trustees, government, academics	<p>Disseminate final MWM proposal</p> <ul style="list-style-type: none">• Produce final proposed MWM model and recommendations• Hold national symposium of key stakeholders• Execute broad communications strategy around proposed model
<p>Expand the dialogue</p> <ul style="list-style-type: none">• Develop working table with post-secondary and employer sector partners on competencies and skills across the K–12, post-secondary, work-life spectrum• build public awareness on broad, balanced goals for education	



Appendices

- A. MWM activity summary 2013–2016
- B. MWM competencies and conditions
- C. MWM advisors
- D. MWM publications

A. MWM activity summary 2013–2016

Reports are available at
www.peopleforeducation.ca

Activities

Phase 1 - 2013–14: Engaging the public—Engaging the experts

- Public consultations held
- National MWM Advisory Committee formed
- Domain leads identified

Phase 2 - 2014–15: Defining domains and competencies

- Foundational domains identified: creativity, physical and mental health, social-emotional learning, citizenship, and quality learning environments
- Research reviews conducted on domains
- Competencies and skills defined for each domain
- Conditions for quality learning environments defined
- Draft competencies and conditions published and feedback solicited
- Analysis of MWM competencies/conditions in the context of Ontario’s French-language education system
- Participated on UNESCO/Brookings international Learning Metrics Task Force

2015/16: Testing competencies; developing conceptual model

- Field testing begun for “proof of concept” with over 80 educators in 26 schools across 7 school boards across Ontario
- Expert consultation held on measurement and field testing
- Collaboration with youth, health, and well-being sectors to develop mechanisms for data sharing
- *Measuring What Matters* joins international Breadth of Learning Advisory Committee

Papers and Reports

1. *Broader Measures of Success: Measuring what matters in education*

2. *Phase 1 Report: Beyond the three Rs*

3. Domain papers:

- Creativity
- Social-emotional learning
- Health
- Citizenship
- Quality learning environments

4. *What Matters in French Language Schools*

5. *Phase 2 Report: 2014–15 From Theory to Practice*

6. *What Matters in Indigenous Education*

7. *Phase 3: 2015–16 Progress Report*

Note: The competencies are undergoing iterative revisions based on ongoing research. For the most up-to-date version of the competencies, see www.peopleforeducation.ca

B. MWM competencies and conditions

Creativity

Imaginative

- Students make connections across disciplines and between objects and ideas
- Students use intuition
- Students work with objects and ideas without an end goal in mind
- Students generate a range of novel ideas in relation to personal knowledge and learning context
- Students apply metaphorical thinking

Inquisitive

- Students articulate potential problems to solve in relation to ambiguous or complex phenomena
- Students seek new resources to answer emerging questions
- Students explore initial ideas more deeply
- Students challenge assumptions
- Students integrate different sets of discipline knowledge or skills to solve problems

Collaborative

- Students empathize with others through careful observation and open-ended questioning
- Students share information and ideas
- Students integrate ideas and feedback offered by others
- Students ask for evaluative input from teachers and peers
- Students seek assistance

Disciplined

- Students objectively assess the strengths and weaknesses of creative ideas, work or products
- Students critically reflect on the outcomes of the work
- Students refine and improve work

Persistent

- Students explore ambiguous and complex phenomena
- Students take paths or approaches different from their peers or teachers
- Students defend solutions and break conventions

Citizenship

Citizenship engagement

- Students address societal issues of importance through opportunities to participate in their formal political system, civil society organizations and grassroots/community organizations.
- Students understand how they can influence change(s) in society through participation.
- Students address issues of importance in their school through a formal student governance process that contributes to school policy and decision-making.
- Students express beliefs about themselves as citizens within a State.
- Students iteratively and progressively develop opinions about key concepts of citizenship and each concept's fluidity in the following ways within Civic Knowledge below.

Civic knowledge and key concepts of citizenship

- Students understand what each concept means and how each is operationalized.
- Students understand the implications of each concept in current affairs in society.

- Students understand how each concept changes and is operationalized over time and across contexts.
- Students understand points of tension and disputes around each concept.
- Students can articulate a position on how each concept should or could be operationalized.

Civic dispositions/attitudes

Civic dispositions are a set of personal attitudes, which enable individuals to be effective citizens. They cluster around areas of identity, responsibility, respect for diversity, and trust. Civic dispositions are well substantiated across the social emotional learning competencies (see Social-Emotional Learning Domain sheet).

Civic skills

- Students synthesize; offer compromises; and create commonalities amongst and between diverse and/or conflicting ideas and points of view.
- Students distinguish between, assess, and effectively employ empirical and normative arguments distinguishing the distinct elements and claims of each.

B. MWM competencies and conditions (continued)

Health

Competencies that support student engagement in physical activity for fitness and pleasure

- Students develop physical fitness, including:
 - Cardio-respiratory endurance.
 - Muscular strength.
 - Muscular endurance.
 - Flexibility.
- Students develop the movement skills needed to participate in a range of activities.
- Students learn concepts such as body and spatial awareness, center of gravity, laws of motion and force.
- Students practice movement strategies such as activity appreciation, tactical awareness, and decision making to develop movement principles and concepts.

Competencies that support capacity for students for making healthy choices

- Physical activity: students learn how to develop physical fitness and gain an understanding of the importance of regular physical activity and its relationship to developing and maintaining health-related fitness.
- Eating: students acquire knowledge and a sense of responsibility for healthy eating choices.
- Sleeping: students learn about the importance of sleep for health and learning, about factors that put their sleep at risk and about good sleep hygiene.
- Risks: students learn to assess the risks associated with the health choices they make.
- Students have a sense of personal responsibility for their own health.

Competencies that support student well-being in relation to sexuality

- Students develop a secure sexual identity.
- Students respect the sexual identities of others.
- Students understand the importance of intimate relationships that are caring, respectful and non-violent.
- Students understand the role of social media in sexual health and how to be respectful and responsible in that context.
- Students have the capacity to manage risks and make good decisions regarding their sexuality.

Competencies that support students' understanding and management of mental illness

- Students are informed about mental health issues.
- Students recognize emerging mental health issues in themselves and others.
- Students are able and willing to seek help for mental health issues for themselves and others.
- Students feel safe and included at school.

Competencies that support mental health

See sheet on Social-Emotional Learning domain

Social-emotional learning

Self-awareness

- Students identify and describe their own emotions.
- Students understand why they feel the way they do.
- Students are honest with themselves and others.
- Students recognize what others are feeling and why.
- Students develop an accurate sense of their capacity to succeed in a variety of situations (i.e. persistence, motivation, confidence, resilience, limitations).
- Students understand their own needs and values.
- Students develop an accurate understanding of themselves, such as their learning styles, strengths, and areas that need improvement.

Self-management

- Students develop personalized learning strategies to master academic material.
- Students monitor and manage academic goals.
- Students develop strategies for setting short and long-term goals.
- Students develop adaptability and flexibility.
- Students develop persistence—they respond and adjust to perceived failure.
- Students respond constructively to internal and external factors that have an impact on their learning and emotion.
- Students develop self-regulation skills and strategies for their feelings, e.g. agitation, anger, elation or listlessness.
- Students manage interpersonal stress and emotions (how to verbalize and develop strategies to manage anxiety, anger, and depression).
- Students develop positive motivation, a sense of hope, optimism, and satisfaction.

Social awareness

- Students understand others' perspectives.
- Students recognize verbal and non-verbal emotional cues in themselves and in others.
- Students adapt to the mood of a group and respond constructively.

- Students empathize with others.
- Students assess risk of social danger and respond appropriately.
- Students understand diverse cultural contexts.
- Students appreciate diversity.
- Students demonstrate social responsibility.

Interpersonal relationships

- Students build and maintain trust in themselves and others.
- Students demonstrate empathy.
- Students demonstrate respect and recognize its importance.
- Students develop skills to recognize, understand, and address/resolve interpersonal conflict.
- Students develop collaborative skills.
- Students engage in cooperative learning, and work toward group goals.
- Students develop leadership skills.
- Students resist inappropriate/negative social pressures.
- Students develop constructive relationships with students and adults.
- Students engage in the school and community and at home.

Decision-making

- Students identify problems when making decisions and generate alternatives.
- Students develop and refine self-reflective and self-evaluative skills.
- Students make decisions based on moral, personal, and ethical standards.
- Students understand how responsible decisions can affect themselves and others, the school, and the community.
- Students understand the importance of equity and social justice.
- Students develop skills to negotiate fairly.

B. MWM competencies and conditions (continued)

Quality learning environments

Conditions in classrooms

Classroom environment

- The classroom is welcoming, inclusive, psychologically safe, and energetic: students want to be there.
- Student voice and experiences are recognized as knowledge and integrated within working operations of the classroom and the classroom curriculum.
- There is a natural oscillation between a buzz of activity and a working silence. Students characterize their work in class as both interesting and engaging.
- Risk-taking is rewarded.
- Students are primarily driven by intrinsic motivation.
- Failures are embraced as opportunities for new learning by both teachers and students.
- Expectations for students are high, but not unrealistic.
- The teacher takes risks—mistakes are made visible to the students.

Learning and assessment opportunities

- Classroom activities:
 - are culturally relevant and responsive, and problem-oriented.
 - require exploration or imaginative ideas.
 - allow time for students to be inquisitive.
 - require persistence.
 - are balanced between open problems—where there are many potential ‘right’ answers and closed problems in which specific information is required.
 - support student meta-cognitive development.
- Learning experiences in classrooms are integrated with wider school and community experiences for students and adults.

- Learning experiences promote the development of empathy, peaceful conflict resolution, and responsible decision making.
- Learning experiences are balanced and diverse
 - they include collaborative discussion, direct instruction, and individual and small group work.
- Learning experiences are balanced between pre-planned structure and improvisation in response to serendipitous moments.
- Open-ended discussions are designed to enhance social, emotional, ethical, and intellectual development.
- Classroom activities are balanced between direct instruction and student-initiated direction—students are encouraged to follow their personal interests within the broad framework of any given curriculum area.
- Peer relationships are a central part of ongoing work in classrooms.
- Student learning is expressed through a variety of forms including oral, written, visual, musical, theatrical, and through demonstration, debate, and multimedia works.
- Formal assessment explicitly includes diverse forms of expression.
- Student competencies in Citizenship, Creativity, SEL and Health are assessed within relevant subject areas and tasks. However, evaluation is judicious, not everything is evaluated.
- Students have opportunities to assess their strengths and limitations, and to discern which approach to learning is best in any given situation

B. MWM competencies and conditions (continued)

Conditions in the school

- School leadership prioritizes staff motivation and commitment, the school's instructional program, and developing teachers' capacities for leadership.
- School leadership is characterized by shared authority through team-based collaborative work with high levels of trust and interdependence. Staff and student voice are part of school-based decision making.
- Professional learning for educators is embedded in ongoing professional work and:
 - informs school direction, vision and strategy.
 - is integrated within educator teams' ongoing meetings.
 - is self-directed and collaborative.
 - is connected to student learning experiences through a variety of student data and information.
 - addresses specific needs of Citizenship, SEL, Health, and Creativity.
 - uses available expertise within the wider community.
- Teachers' out of classroom collaborative work relates to and corresponds with the daily work flow of teachers, such as planning time, assessment periods and parent meetings.
- Student input on school and classroom decisions and strategy is elicited and used.
- The school builds student civic agency through active student governance and committee processes that influence decision-making, inform change, and create school policy.
- The school is an open learning space in which community members outside of the school with diverse interests and resources/expertise work with students and staff.
- The school ethos promotes mutual respect and equality of opportunity and encourages the active participation of pupils in all aspects of school life.
- Social interaction in the school models effective social relationships, where students learn about and put into practice attributes such as respect, responsibility, fairness, and empathy.
- School hallways, libraries, cafeterias and schoolyards are all recognized as learning environments.

- Adult-student and peer relationships across the school are recognized as important informal learning moments that can be connected to relevant formal learning within the classrooms.
- School-based structures are in place to identify and provide support for students dealing with social, emotional, learning or mental health problems/disorders.

Conditions beyond the school

Relationships between school and community

- Clear and mutually beneficial agreements exist between schools and their community partners.
- The school has designated member(s) of staff with responsibility for coordinating, monitoring and reviewing learning through community involvement in and beyond the school.
- Meaningful school–community partnerships have active involvement of both educators and community members (including parents).
- Schools work with external health services or community agencies to access treatment for students with mental health disorders.
- Curricula being taught in classrooms are linked to school–community joint learning projects.

Learning opportunities for students provided by the wider community

- Meaningful, enriched learning relationships are cultivated with community members and organizations that co-create conditions that foster creativity, citizenship, health and social-emotional learning
- Student civic engagement is supported through student participation in a variety of community organizations, political advocacy and formal politics.
- Students are actively involved in contributing to communities and applying an understanding of diversity while respecting others across different contexts.
- Community members (including parents) mentor students during and beyond the scope of any given project.

C. MWM Advisors

Advisory Committee

Domain leads	
Quality Learning Environments Nina Bascia	Professor and Director, Collaborative Educational Policy Program, Ontario Institute for Studies in Education, University of Toronto
Creativity Rena Uptis	Professor of Education, Queen's University
Health Bruce Ferguson	Professor of Psychiatry, Psychology, Dalla Lana School of Public Health, University of Toronto; Community Health Systems Research Group, SickKids
Citizenship Alan Sears	Professor of social studies and citizenship education, University of New Brunswick
Social-emotional Learning Stuart Shanker	Distinguished Research Professor of Philosophy and Psychology, York University; CEO of the MEHRIT Centre, Ltd; Science Director of the Self-Regulation Institute
Lindy Amato	Director, Professional Affairs, Ontario Teachers' Federation
Ruth Baumann	Partner, Directions Evidence and Policy Research Group
Lisa Bayrami	Director of Research, Roots of Empathy
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Louise Bourgeois	Faculty of Education, Laurentian University
Ron Canuel	President & CEO, Canadian Education Association
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John Malloy	Director of Education, Toronto District School Board
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Bruce Rodrigues	Former Chief Executive Officer, Education Quality and Accountability Office
Sylvie Ross	Parents partenaires en éducation
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D. MWM Publications

1. General

***Measuring What Matters: Brochure* (2015)**

A two-page summary of the project with examples of the competencies in each of the domains.

***Broader Measures of Success: Measuring what matters in education* (2013)**

The launch report for *Measuring What Matters* proposes five dimensions of learning that, alongside academic achievement, might be part of a more comprehensive set of indicators of success: physical and mental health, social-emotional development, creativity and innovation, citizenship and democracy, and school climate. The report looks at how success in these areas is important for the long-term well-being of students and society, how schools can strengthen these capacities in students, and provides examples of existing measures.

***Measuring What Matters: Reframing Goals and Measures for Public Education* (2015)**

An overview of the project background, rationale, key concepts and timelines. Includes descriptions, competencies and conditions in the domains of creativity, health, social emotional learning, and citizenship, as well as conditions of Quality Learning Environments.

***What Matters in French Language Schools Summary* (English) (2015)**

Dr. Michelle Boucher examines the connections between initiatives undertaken in the French-language education system in a minority setting in Canada, and particularly in Ontario, and the five domains in People for Education's *Measuring What Matters* initiative. Full version of paper available in French.

***What Matters in Indigenous Education: Implementing A Vision Committed To Holism, Diversity And Engagement* (2016)**

Dr. Pamela Toulouse explores an Indigenous approach to quality learning environments and relevant competencies/skills. The paper draws out the research, concepts and themes from *Measuring What Matters* that align with Indigenous determinants of educational success. It expands on this work by offering perspectives and insights that are Indigenous and authentic in nature.

2. Domains and competencies

***Draft Competencies and Skills Kit* (2015)**

The kit includes a short description of each domain area and its associated competencies and skills, as well as the conditions for quality learning environments.

***Physical and Mental Health in Schools* (2014)**

Dr. Bruce Ferguson, Sickkids & The University Of Toronto and Keith Power

This report examines how schools can effectively promote physical and mental health and how to measure the outcomes of health promotion programs.

***Creativity: The State of the Domain* (2014)**

Dr. Rena Uptis, Queen's University

This report looks at why creativity is an important skill for long-term success, how schools can foster creativity, and how it might be measured.

***Social-emotional skills—the new basics* (2014)**

Dr. Stuart Shanker, York University

This report examines the impact of social-emotional skills on academic performance and lifelong learning, and suggests potential measures for social-emotional learning.

***Measuring What Matters: Citizenship Domain* (2014)**

Dr. Alan Sears, The University Of New Brunswick

This report examines why citizenship is a core value for long term success for students and a cohesive, democratic society.

***The School Context Model: How School Environments Shape Students' Opportunities to Learn* (2014)**

Dr. Nina Bascia, Ontario Institute For Studies In Education, The University Of Toronto

This report highlights the interactive and dynamic environments in schools that support and shape rich learning experiences for students and educators.

3. Progress reports

Phase 1

***2013/14: Beyond The 3 "R's"* (2014)**

A summary of the findings from the initial public consultations and an outline of the work done to identify the domain areas and conditions for quality learning environments.

Phase 2

***2014/15: Moving From Theory to Practice* (2015)**

An overview of the work done to explore the relationship between the domains and education policy and curriculum in Ontario, and plans for the field trials to take place in Ontario schools.

Notes

1. These are examples taken from the UN's Sustainable Developmental Goals, as well as challenges in world economic growth identified by the IMF's January report.
2. These competency examples come from the Government of Canada's website. Communication and collaboration are required to develop the reports and recommendations that Canada commits to produce from "multi-stakeholder engagement and partnerships". Flexible thinking and information literacy are required to "craft new and innovative policies and mechanisms" to progress society and understand when goals and targets have been reached using data.
3. Some examples of these are Alberta Education 2, Fullan, Ontario Ministry of Education ("21st Century Competencies"), and Winthrop and McGivney.
4. One example of this reaction took place in September 2016, when Ontario committed \$60 million to the Renewed Math Strategy in response to low math scores on the Education Quality and Accountability Office test from spring 2015. The resultant Policy/Program Memorandum (PPM 160) is available [online](#).
5. See Gallagher-MacKay and Kidder.
6. For the complete report on phase one, see People for Education.
7. For the complete report on phase two, see Cameron, et al.
8. For more information about the creativity domain, please see Uptis.
9. For more information about the citizenship domain, please see Sears.
10. For more information about the health domain, please see Ferguson and Powers.
11. For more information about the social-emotional learning domain, please see Shanker.
12. For more information about the quality learning environments domain, please see Bascia.
13. Emergent design involves data collection and analysis procedures that can evolve over the course of a research project in response to what is learned in the earlier parts of the study. In particular, if the research questions and goals change in response to new information and insights, then the research design may need to change accordingly. This flexible approach to data collection and analysis allows for ongoing changes in the research design as a function of both what has been learned so far and the further goals of the study. Within the broader framework of qualitative research, emergent design procedures are closely associated with the broad goal of induction because success in generating theories and hypotheses often depends on a flexible use of research methods. For more information see Morgan.
14. For more information see Ontario Ministry of Education, "Growing Success."
15. For more information about assessment practices, see Black and Wiliam, especially pages 142-6.
16. See Ontario Ministry of Education, "Growing Success" 39.
17. This is similar to the "constant comparative method" outlined in the works of Glaser, and Strauss and Corbin.
18. See Ontario Ministry of Education, "21st Century Competencies" or Ontario Ministry of Education, "Ontario's Well-Being Strategy for Education."
19. For a review of curriculum and policy, see Cameron, et al. 5-8.
20. For more information, see Sergioivanni.
21. For more information, see Cameron, et al. 4.

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