Implementation of 21st Century Competencies requires Revolution not Renovation

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Abstract

This paper will explore educational policy development in Ontario that lead to publication of the "Winter 2016 Edition of "21st Century Competencies – Towards Defining 21st Century Competencies for Ontario", describe the international context, and then consider options for implementation. Though the focus is on the Ontario context, the arguments apply to all educational jurisdictions.

It is time for a full-scale review of the structure of K-12 education. If Ontario is to develop graduates who meet the competencies necessary for 21st Century life, it must let go of the structures of the early 19th century, and rebuild rather than renovate. Research should be developed, to consider alternative models of graduation criteria, assessment processes, and school structure. Simon Sinek asserts that once an organization faces success, the focus shifts from "why" to "what", and the clarity of vision is diluted. (Sinek, 2011) Ontario's vision for education has become focused on the "what". Implementation of 21st Century Competencies is an opportunity for a return to "why", and redefinition of the "what" and the "how".

While already underway throughout the world, the scope of discussion regarding 21st Century Competencies needs to be expanded, to consider "how" the competencies are addressed, not just "what" they are. As summarized in this paper, the "Why" appears to have attained consensus: our educational system must support students to learn the skills necessary to be successful. However, if the "how" remains the same, it may not be possible to achieve "what" is desired.

Implementation of 21st Century Competencies requires Revolution not Renovation

Introduction

The Ontario Ministry of Education has published the Winter 2016 Edition of "21st Century Competencies – Towards Defining 21st Century Competencies for Ontario", as a foundation document for discussion. A rationale for is provided for defining and supporting the development of 21st century competencies. An overview of the 21st century competencies most prominently featured internationally if followed by a description of the work being done in Ontario in this area. Connections are made between these competencies and pedagogical and assessment practices, and key questions are then posed for consideration in determining policy related to the development of the competencies for the Ontario education system.

This paper will explore educational policy development in Ontario that lead to the publication of the "Winter 2016 Edition of "21st Century Competencies – Towards Defining 21st Century Competencies for Ontario", will describe the international context, and will then consider options for implementation. Though the focus is on the Ontario context, the arguments apply to all educational jurisdictions.

Background

The 1994 Royal Commission on Learning identified among the purposes of schooling: literacies (in) reading, writing, problem-solving; (creating) citizens who have learned how to learn; prepare students to become responsible citizens, and academic and intellectual growth.

The challenge in 1994 was: "If we agree that schools are not adequately fulfilling theses purposes, how must they change? (Ontario Ministry of Education, 2005)

These purposes were echoed four years later by Brighouse, in aims goals of personal autonomy, contribution to life, personal flourishing, democratic competence and the capacity for cooperation. (Brighouse, 2009)

More recently in Canada, People for Education, the Conference Board of Canada, and the Canadian Council of Chief Executives have published lists of competencies beyond the specifics of subject disciplines.

People for Education embarked on a five-year study in 2013, identifying a broader set of goals for education, possibly including: academic achievement, physical and mental health, social-emotional development, creativity and innovation, citizenship and democracy, and school climate. (People for Education, 2013)

The Conference Board of Canada lists its Employability Skills 2000+ as: Fundamental Skills: Communicate, Manage Information, Use Numbers, Think and Solve Problems, Personal Management Skills: Demonstrate Positive Attitudes and Behaviours, Be Responsible, Be Adaptable, Learn Continuously, and Teamwork Skills: Work with Others, Participate in Projects and Tasks. (Conference Board of Canada, 2005)

The Canadian Council of Chief Executives lists 21st century skills including the "ability to reason in innovative and creative ways, to collaborate and communicate using new and emerging technologies, to adapt rapidly, to solve problems and take calculated risks, and to continue learning throughout one's lifetime". (Graham Orpwood, Bonnie Schmidt, & Hu Jun, 2012)

Looking beyond the Ontario context, Tony Wagner, in "The Global Achievement Gap – Why Even Our Best Schools Don't Teach the New Survival Skills our Children Need – And What We Can Do About It" has identified issues facing education in the United States of

America. He identifies "the gap between what even our *best* suburban, urban, and rural public schools are teaching and testing versus what *all* students will need to succeed as learners, worker, and citizens in today's global knowledge economy. (Wagner, 2014) His Seven Survival Skills are: (1) Critical Thinking and Problem Solving, (2) Collaboration Across Networks and Leading by Influence, (3) Agility and Adaptability, (4) Initiative and Entrepreneurialism, (5) Effective Oral and Written Communication, (6) Accessing and Analyzing Information, and (7) Curiosity and Imagination.

Wagner's research has led to his work with Ted Dintersmith, examining American schools where these seven skills are supported, and has resulted in the creation of a documentary: "Most Likely to Succeed" (http://www.mltsfilm.org/), which has been screened throughout North American in the past year, and has sparked conversation among educators and parents.

As well, countries such as England, Singapore, and the United States of America have developed competency lists, with a goal to prepare students for the world of the 21st century.

Policy Chronology

Significant policy reviews took place in Ontario in 1950, 1968, 1980 and 1994. (Anderson & Ben Jaafar, 2003) *Living and Learning*, *1968,* (Provincial Committee on Aims and Objectives of Education in the Schools of Ontario, 1965) commonly known as the Hall-Dennis report focused on education in the elementary years and led to adoption of *The Formative Years*. Featured among the reforms in the 1970s were student-centred learning, active learning, individualization according to learning styles, increased access to Kindergarten, elimination of promotion by grade, implementation of the Credit system in secondary, abandonment of exit exams for graduation, continued "sorting" by destination, and a shift from expectations to "guidelines".(Ontario Ministry of Education, 1975)

The SERP Report (Secondary Education Review Project), 1980, eventually led to the adoption of OSIS, (1984). PPMs in 1992 and 1994 directed the de-streaming of grade 9, development of "Common Curriculum" for the primary, junior and intermediate years, and creation of Ontario Academic Credits to replace grade 13.

The first overall review of education since the Hope Commission in 1950 was the background document*: For the Love of Learning. Report of the Royal Commission on Learning (1994*). It contained 167 specific recommendations including abolition of Grade 13 and creation of two streams: Academic and Applied at the secondary level. It is the foundation of four current policy documents within the Ontario Ministry of Education:

Ontario Schools Kindergarten to Grade 12: Policy and Program Requirements, 2011 (OS) sets out the requirements of the Ministry of Education that govern the policies and programs of all publicly funded elementary and secondary English-language schools in Ontario, and consolidates in one document the broad range of policies and programs that affect the educational experience of students in Ontario schools from Kindergarten to Grade 12. (Ontario Ministry of Education, 2011)

Growing Success: Assessment, Evaluation and Reporting in Ontario's Schools, First Edition Covering Grades 1 to 12 – 2010 provides information that will help teachers complete the report card and use it for reporting to parents, and provides information to parents that will help them understand the reporting process.(Ontario Ministry of Education, 2010)

Creating Pathways to Success, An Education and Career/Life Planning Program for Ontario Schools: Policy and Program Requirements, Kindergarten to Grade 12,

2013 helps students choose the courses and activities that support their goals and interests. (Ontario Ministry of Education, 2013a)

Learning for All – A Guide to Effective Assessment and Instruction for All Students, Kindergarten to Grade 12, 2013 is a resource guide that builds on the guiding principles outlined in *Education for All: The Report of the Expert Panel on Literacy and Numeracy Instruction for Students With Special Education Needs, Kindergarten to Grade 6* (2005). It is designed to share information with educators about evidence-based and research-informed educational approaches including Assessment for Learning, Universal Design for Learning, Differentiated Instruction, and the Tiered Approach. It describes an integrated process of assessment and instruction and presents planning tools (class and student profiles) that support the learning of all students from Kindergarten to Grade 12. (Ontario Ministry of Education, 2013b)

Sattler describes describes Ontario education governance as transitioning beginning in 1993 "from an aggressive neoliberal agenda focused on expenditure reductions, financial accountability, and accountability for outcomes, to a more collaborative orientation informed by academic ideas about financial stewardship, stakeholder partnerships, and accountability for student success." (Sattler, 2012)

Sattler also asserts: "Throughout the period studied, governance reforms were initiated within a neoliberal accountability agenda where school board governance changes were assumed to lead to improvements in student achievement. Yet, there exists a significant research gap about whether and how school board governance contributes to better outcomes for students." (Sattler, 2012)

The Education Improvement Commission in 2000 had fifteen recommendations, and all related to accountability in the areas of performance and funding, but did not consider curriculum or assessment. (Education Improvement Commission, 2000) There is now a need to return the focus to student outcomes, and implementation of 21st Century Competencies may be the vehicle by which this change may be effected.

Problem Statement

Simon Sinek asserts that once an organization faces success, the focus shifts from "why" to "what", and the clarity of vision is diluted. (Sinek, 2011) Ontario's vision for education has become focused on the "what". Implementation of 21st Century Competencies is an opportunity for a return to "why", and redefinition of the "what" and the "how".

Here's the "what" that is proposed within the Ontario 21st Century Competencies list:

- Critical Thinking and Problem Solving

- Innovation, Creativity, and Entrepreneurship

- Learning to Learn/Self-Awareness & Self-Directed Learning

- Collaboration

- Communication

- Global Citizenship

Some educators have taken on the "why" in the absence of official policy, embracing "Self-Directed Learning", and bringing it to reality in North American schools in the form of Personalized Learning. James Rickabaugh, for one, proposes five shifts: from Instruction Focused on Curriculum, Pacing, and Presentation to Instruction focused on Content; Competencies, and Actual Learning from the Students' Perspective; from Learning on Demand to Instruction on Demand, from Learning driven by General Assumption and Vague Reasons to

Learning driven by Clear Purpose. from Focusing on Content Accumulation to Building Learning Capacity, and from Ensuring Access to Ensuring Success. (Rickabaugh, 2016)

The 21st Century Competencies proposed address many of these features of Personalized Learning:

21st Century Competencies	Instruction focused on Content, Competencies, and Actual Learning from the Students' Perspective	Instruction on Demand	Learning driven by Clear Purpose	Building Learning Capacity	Ensuring Success
Critical Thinking and Problem Solving	✓		✓	✓	✓
Innovation, Creativity, and Entrepreneurship	✓	✓	✓	✓	✓
Learning to Learn / Self-Awareness & Self-Directed Learning	✓	✓	✓	✓	✓
Collaboration	✓	✓		✓	
Communication	✓			✓	
Global Citizenship	✓		✓	✓	

When considering 21st Century Competencies, popular media focuses is on computers and information technology. Diana Oblinger summarizes the future role of IT in education: as a convenience to make accessing resources, administrative tasks and academic work faster and easier; as improving the experience through personalization and support; as a means to extend learning through cognitive apprenticeships, gaming, real-world and simulation experiences, peer-to-peer collaboration and informed choice; as a collaborative tool, permitting shared

infrastructures; as a tool for informed decision making; and as a tool to decouple, disaggregate and dematerialize to achieve greater economies of both scale and scope. (Oblinger, 2012) The Ontario Ministry of Education's 21st Century Competencies document concludes that "technology is only effective when used to provide access to richer content, develop stronger teaching practices, make links between classrooms and life, and enable assessments that align with new teaching practices". (Ontario Ministry of Education, 2016) Given the goal of Innovation, Creativity and Entrepreneurship for Ontario students, this statement seems unnecessarily limiting in its scope for Ontario educators.

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Three Alternatives

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There are three alternative approaches to systemic change in education, each of which has been employed in Ontario in the past half-century. Each should be considered as a means for curricular integration of 21st century competencies:

(a) addition to the existing curriculum, as new subjects or as new content within traditional subjects – a **renovation** of the structure;

(b) integration as cross-curricular competencies that both underpin school subjects and place emphasis on the acquisition of wider key competencies – a **layering** of the structure; or

(c) included in a new curriculum in which the traditional structure of school subjects is transformed and schools are regarded as learning organizations – a **rebuilding** of the structure.

Renovation: Garfield Gini-Newman and Roland Case, in "Creating Thinking Classrooms – Leading educational change for a 21st century world" assert that 21st century competencies may be supported within the environment of a "thinking classroom", and argue for an education "renovation" rather than "revolution". They suggest that renovation builds on existing strengths and practices, allows for more individual self-direction and less mass

imposition, and is more practical, since they believe that mandating change is counterproductive. (Gini-Newman & Case, 2015) However, when these arguments are considered in the context of teaching, the principle of differentiation assumes exactly the opposite to be desirable when the change is imposed by the teacher on the student, so it would be illogical to assume it would be successful at the system level.

The current curriculum structure in Ontario is based upon this process of "renovation". On a regular cycle, secondary course outlines are reviewed and revised, with expectations added and deleted. An example of this is the area of career planning. In the 1990's, every course had a strand dedicated to this area, and students explored career options related to the subject. With the implementation of OSIS in 1999, these expectations were consolidated with a half-credit course in grade 10, dedicated to career planning.

Another example of this renovation model occurred with policy changes in 2003 that aimed to increase high school graduation rates, and retain students until age 18, but did not changed the structure of secondary curriculum. In 2003, the Ontario Government introduced the first component of a three-phase, $1.3 billion1 Student Success / Learning to 18 strategy. The goal of the strategy, encompassing grades 7 to 12, is to increase high school graduation rates and to have youth engaged in structured learning until age 18 or until graduation. Within the Student Success / Learning 18 strategy are Student Success Teacher roles within schools, and Specialist High Skills Major Programs for students. These "add-on" components are a double-edged sword: they concentrate resources on one group of students, improving their achievement, while making no change to the classroom conditions that produced the issue.

A challenge with this model is to determine what we should deemphasize in current instruction and assessment to make room for 21st century understandings? (Dede, 2010)

Creation of new strands in course curriculum requires removal of expectations within others. Creation of new mandatory courses would limit student choice within the 30 credits required for graduation, should they be added to the current 18 compulsory courses.

Layering: The mode of implementation for many Ontario educational policies has been layering of new expectations and frameworks upon existing structure.. When assessment was restructured in 1999, Learning Skills were added to the reporting process, thereby driving instruction and assessment changes. The Achievement Chart categories were also added, focusing instruction and assessment on four areas: Knowledge and Understanding, Thinking and Inquiry, Communication, and Application. These two are not explicitly contained within the course expectations, but are expected to be part of the course content and delivery.

Layering allows teachers to continue their current practices, and embed new concepts and develop new techniques, within the existing framework. When this method is utilized to integrate 21st century technology, it most often achieves only the first level of Substitution, rather than the more sophisticated level of Augmentation, or the transformative levels of Modification or Redefinition. (Puentedura, 2009) The power of instructional technology is lost when it is merely doing the same functions with a new tool or medium. For transformation, it should produce results unattainable using the former tools and processes.

Singapore is taking a similar approach with implementation of its 21st Century Competencies Framework, aiming to seamlessly integrate Information and Communication Technology skills throughout the curriculum, asserting that "a good integration of both media and information literacy will make this local initiative work out more efficiently among the already packed Singapore curriculum." (Lin, Mokhtar, & Wang, 2015)

The competency of "Innovation, Creativity, and Entrepreneurship" is well suited to implementation as a layer. While it would be challenging to create a strand within most curriculum, "teachers can provide an environment in which they can encourage, nurture, support and value creativity, an environment that encourages students to think differently, explore alternative possibilities, use imagination, experiment, problem-solve, explain, be innovative and take risks, but at the same time feel secure." (Newton & Newton, 2014)

Layering allows for the street-level policy actor to choose when and whether to implement, and results in un-even implementation of new policy.

Rebuild: Implementation "is not only a matter of trading 20th century content and goals for those of the 21st century, but a matter of redefining what has to be considered as core in the 21st century curriculum and considering the implications of a 21st century curriculum for the current school system. (Voogt, Erstad, Dede, & Mishra, 2013)

Teachers need to work with students to set criteria for success, plan learning to meet the criteria, and then assess and validate the student's demonstration of competence against the agreed-upon criteria. To implement this structure would require restructuring of the credit system, reorganization of subject disciplines, and development of assessment and evaluation tools that would be personalized to each learning situation. Gini-Newman and Case stated in the first possible solution that renovation builds on existing strengths and practices, allows for more individual self-direction and less mass imposition, and is more practical, since they believe that mandating change is counterproductive. However history has shown that mandating change is the only method that achieves consistent results on a large scale.

Between 1996 and 2003, government mandates changed the courses taught, the compulsory credits necessary for graduation, the additional conditions for graduation

(community service and literacy test completion) and made massive changes to the working conditions of teachers. Some changes, such as the Teacher Advisor Program, teaching additional classes, and professional learning requirements, did not survive the implementation process, but most of the changes brought in at the provincial level remain today. So, the argument that it will not work is not grounded in experience.

One of the key structures to be considered is that of the "credit" or the "Carnegie Unit". Just after the turn of the 19th century, The National Education Association's Committee of Ten, a panel of prominent educators led by Charles Eliot, had called for a standardized high school curriculum of four years of English and a foreign language, and three years of history, science mathematics. The Carnegie trustees in 1905 defined fourteen units required for college entrance from within this framework, with each unit consisting of 120 hours of instruction. While the Carnegie Unit plays a vital administrative function it has become a proxy for learning. Innovations such as: competency models, use of technology to enhance education, and a growing body of research that suggests that deeper learning results from opportunities to connect and integrate knowledge across disciplines, are all impeded by the Carnegie Unit structure. (Silva, White, & Toch, 2015)

Scientific management was also foundational to education structure at this time; with only six percent of the American population graduating from high school, and only two percent from college. The mission of the new school system aligned with Taylorism: to prepare mass numbers of students to work in the new Taylorized economy. As well, Edward Thorndike, one of the most influential psychologists of the era, supported this with his axiom "Quality is more important than equality". (Rose, 2016) A century later, there are few arguments for retention of this approach, in an era that values equity and diversity.

The Canadian Council of Chief Executives recommends that Canada "rethink traditional subject boundaries and develop multi-disciplinary approaches to learning that would provide students with relevant and exciting contexts for their education". (Graham Orpwood et al., 2012)

Benjamin Bloom's research has shown that when students are permitted self-paced learning, more than 90 percent are able to achieve mastery. (Bloom, 1984) In the corporate world, Zoho University in India has employed instruction that is self-paced and project based, with no grades but rather feedback on projects. This university pays economically disadvantaged youngsters to attend, and then offers them employment with no obligation withih the engineering departments at Zoho Corporation. (Rose, 2016)

Rather than basing student achievement on grades within courses or credits, Todd Rose proposes competencies. His system would have three features: competencies would be evaluated as pass/incomplete, the criteria for each competency would be institution-agnostic, and the competency statements would be professionally aligned. His call for institutional overhaul is stated very eloquently:

> "If we are looking for the institution where implementing equal fit would have the biggest immediate impact on opportunity, the place to start is clear: public education…almost everything in traditional educational systems remains designed to ensure students receive the same exact standardized experience….We continue to enforce a curriculum that defines not only what students learn, but also how, when, at what pace, and in what order they learn it. In other words, whatever else we may say, traditional public education systems violate the principles of individuality."

Todd Rose asserts that we should require criterion-referenced assessment, and adopt cost-effective, scalable ways to implement student-driven, self-paced, multi-pathway educational experiences. (Rose, 2016)

The competency of "Innovation, Creativity, and Entrepreneurship" restructuring of the current credit system, as "freedom and control generate insurmountable tensions and are

antagonistic to the development of creative learning communities." (Newton & Newton, 2014)

The control imposed by the current curriculum restricts creativity on the part of teachers and

students, due to the "fundamental discrepancies between creativity and knowledge learning…

and between creativity reformers and traditional teachers." (Cheng, 2010)

An example of a new structure is the Opening Minds curriculum in England, which

focuses on citizenship, learning, managing information, relating to people and managing

situations. The challenge faced within this model for schools operating a competence-based

curriculum is the tension it creates with the continuing preoccupation with a target-driven

curriculum embedded in a culture of performativity. (Stanley, Jones, & Murphy, 2012) Another

limitation of this structure is that is very dependent upon the classroom delivery, rather than

providing a framework within which educators can confidently proceed. The Open Minds

curriculum is supported in policy provides the "why", but does not sufficiently provide the

"how", in order to support large-scale implementation and resulting success.

While not a full-scale redesign, the British Columbia Ministry of Education is a step

closer with its vision for Personalized Learning, and its implementation of a new hosted student

information service where students can build and manage a personal portfolio of works and

submit assignments online, and teachers can create secure, online learning spaces where students

can coordinate on projects. As a result, teachers will have instant access to a single record for

each student, covering the history of their education to date. (British Columbia Ministry of

Education, 2015) This infrastructure modification brings British Columbia one step closer to

decoupling its curriculum from the rigidity of individual subjects assigned to individual teachers

to grant individual credits. In their analysis of the ongoing work in British Columbia, Wanda

Boyer and Carolyn L. Crippen assert that changes will give adminstrators and teachers more

opportunities for flexibility to organize classes and learning experiences to support learners'

varied learning and motivation needs. (Boyer & Crippen, 2014)

It is useful to consider the three change models, as they would support each of the six

competencies:

21st Century Competencies	Renovate • Add strands to existing curriculum documents	Layer • Add an assessment framework to existing curriculum documents	Rebuild • Create one competency matrix, with subject expectations included.
Critical Thinking and Problem Solving	• Already part of Math Processes	• Could be added to existing Learning Skills	•
Innovation, Creativity, and Entrepreneurship	• Already embedded in The Arts and Business Studies	• Could be added to existing Learning Skills •	• Useful framework for inter-disciplinary focus.
Learning to Learn / Self-Aware & Self-Directed Learning	•	• Could be added to existing Learning Skills	• This is the only structure that will actually support this competency
Collaboration	•	• Could be added to existing Learning Skills	•
Communication	•	• Already an Achievement Chart category in ALL courses. • Could be added to existing Learning Skills	• Needs a continuum of criteria, to be developed and demonstrated in ALL disciplines
Global Citizenship	• Difficult to incorporate in subjects like Mathematics • Could be a strand in many subjects.	• Difficult to incorporate in subjects like Mathematics	• Useful framework for inter-disciplinary focus. • Competency valued by many stakeholders, so should be received positively

Action Plan

It is time for a full-scale review of the structure of K-12 education. If Ontario is to

develop graduates who meet the competencies necessary for 21st Century life, it must let go of

the structures of the early 19th century, and rebuild rather than renovate. Research should be

developed, to consider alternative models of graduation criteria, assessment processes, and

school structure.

Graduation criteria: If expectations were decoupled from credit courses, it would

become possible to increase the competencies required while reducing the "courses" necessary to

meet the criteria. There are already two graduation requirements that are not part of the 30 credit

graduation requirement: 40 hours of community service and completion of the Ontario

Secondary School Literacy Test. Expansion of criteria to include not just 21st Century

Competencies, but specific expectations within currently-mandatory courses, would negate the

need for a lock-step pathway within the 18 compulsory courses.

Assessment processes: Personalized learning (Rickabaugh, 2016) and differentiated

instruction will require use of technology to link student products with teacher assessments.

British Columbia's move to an online portfolio is a promising first step. Ontario has widespread

use of programs such as Markbook, which record student assessment data within the

Achievement Chart categories, and then apply weightings to the categories to calculate a final

mark for inclusion on the report card.

Change in assessment would be supported by a change in the structure of the report card

and the reporting process. Judy F. Carr and Douglas E. Harris suggest that a school might create

their own report card, where "some information about progress with standards can be relayed

directly to students in the classroom. Other information can be shared with parents through other means of reporting. The report card needs to provide a representative summary of performance across all areas." (Carr & Harris, 2001) In the Ontario context, Learning Goals and Success Criteria, mapped directly from curriculum expectations, competencies and learning skills, would provide the standards at the basis of a new assessment and reporting structure. (Ontario Ministry of Education, 2010)

As Phillip Schlechty argues: "Students… are more likely to engage and persist with work when the standards for the products and exhibitions are clear and compelling to them". (Schlechty, 1997) This can only become a reality if the assessment structures are modified to make the connection between standards and performance are clear to both teacher and student.

School structure: Sir Ken Robinson has observed:

> The curriculum has another purpose. Schools need a curriculum so they can work out how to use their resources and how to arrange everyone's use of time and space. Typically schools divide the day into units of time and allocate them to each of the subjects. This may seem like common sense. The school day needs to be organized, after all, and students and teachers need to know what's happening when and where. In principle, the curriculum should shape the schedule. In practice, it often works the other way around. (Robinson & Aronica, 2015)

The move to personalized learning requires a more flexible schedule, one that is driven by curriculum. The curriculum needs to be divorced from the Carnegie Unit, and be reorganized into groups of competencies, with flexibility and overlap. Students should be able to demonstrate achievement, and have it measured against multiple competency organizers, and validated by teachers from multiple disciplines.

Sir Ken Robinson proposes that curriculum be looked at terms of structure, content, mode and ethos. This leads to eight core competencies: Curiosity, Creativity, Criticism, Communication, Collaboration, Compassion, Composure and Citizenship, which are supported

by a balanced curriculum in the areas of The Arts, Humanities, Language Arts, Mathematics, Physical Education, and Science. With this structure, he asserts that the curriculum will demonstrate Diversity, Depth and Dynamism. (Robinson & Aronica, 2015)

Ontario schools could be structured in a similar way, with Learning Skills and 21st Century Competencies supported through articulation of Success Criteria that can be assessed and validated by teachers, independent of grade level or course description. While this would require a revamping of the curriculum policy, to connect and integrate, it could be implemented initially within the current structures. The need for a shift to a more flexible, less time-bound structure, would then become evident as teacher-practice shifted to a competency-based, personalized model.

Conclusion

While already underway throughout the world, the scope of discussion regarding 21st Century Competencies needs to be expanded, to consider "how" the competencies are addressed, not just "what" they are. As summarized in this paper, the "why" appears to have attained consensus: our educational system must support students to learn the skills necessary to be successful in the 21st century. However, if the "how" does not change, it may not be possible for 21st century learners to achieve "what" is desired to develop skills in   Critical Thinking and Problem Solving; Innovation, Creativity, and Entrepreneurship; Learning to Learn/Self-Awareness & Self-Directed Learning; Collaboration; Communication; and Global Citizenship.

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