

# 21<sup>st</sup> Century Teaching and Learning

## What Research Tells Us... (Volume 1)

### CONTEXT:

The Ministry of Education and the Council of Ontario Directors of Education (CODE) are pleased to announce funding for a third round of 21<sup>st</sup> Century Innovation and Capacity Building Research.

As described in the communication to Directors, and the Letter of Agreement, we anticipate that the innovative practices you explored in the 2012-13 school year will be a stimulus for further creativity and innovation in 2013-14.

You may find the following emerging themes and priorities from international and local innovation research helpful in your strategic decision-making as you plan forward in your board and as you complete Appendix A of the Letter of Agreement.

### 21<sup>ST</sup> CENTURY TEACHING AND LEARNING EMERGING THEMES

1. In the OECD's *Innovative Learning Environments* (ILE) Report (2013), they outline **7 learning principles** that should be at the core of innovative learning environments. These 7 learning principles are framed as important criteria for "21<sup>st</sup> century effectiveness". They are the result of an investigation into a substantial international set of cases of innovative learning environments from 29 systems in 23 countries.

#### INNOVATIVE LEARNING ENVIRONMENT PRINCIPLES

- Make learning and learner engagement central
- Ensure that learning is social and often collaborative
- Be highly attuned to learners' motivations and emotions
- Be acutely sensitive to individual differences including in prior knowledge
- Be demanding for each learner but without excessive overload
- Assessment is critical, but must underpin learning aims and strong emphasis on formative feedback
- Promote "horizontal connectedness" across activities and subjects, in and out of school

**"Look at your learning space with 21<sup>st</sup> century eyes: Does it work for what we know about learning today, or just for what we know about learning in the past?"**  
(Sir Ken Robinson, *The Third Teacher*, 2010)

### ACQUISITION OF KNOWLEDGE

2. In *Visible Learning and the Science of How We Learn* (2013), Hattie and Yates discuss Learning Foundation research evidence. In addition to six principles of memory retention and five aspects of handling information overload, they provide six principles of acquisition of knowledge for consideration in planning learning experiences for students:
  - Learning requires time, effort, and motivation
  - Concentration spans are short
  - Distributed practice is more effective than massed practice or cramming
  - Prior knowledge effects are powerful
  - The mind responds well to multimedia input
  - To learn, the mind has to be active
3. At the 21<sup>st</sup> Century Teaching and Learning Round Table event on October 29<sup>th</sup>, 2013, teams from all 72 district school boards shared their best innovation practices, many of which align with current international research on whole system reform that integrates effective technology-enabled pedagogy (e.g., Hattie, Fullan, Puentedura) and features of strong districts (Leithwood).

### 9 CRITICAL FEATURES OF STRONG DISTRICTS

- A broadly shared mission, vision and goals founded on ambitious images of the educated person;
- A coherent instructional guidance system;
- Deliberate and consistent use of multiple sources of evidence to inform decisions;
- Learning-oriented organizational improvement processes;
- Job-embedded professional development for all members;
- Budgets, structures, personnel policies and procedures, and uses of time that are aligned with the district's mission, vision and goals;
- A comprehensive approach to leadership development;
- A policy-oriented board of trustees;
- Productive working relationships with staff and other stakeholders.  
(Leithwood, 2013)

4. Both international and local research demonstrates that when the forces of pedagogy, technology and system change are brought together, there is evidence of impact on student engagement, learning, well-being and ultimately achievement. (Fullan, 2013) outlines 5 steps in the change process and emphasizes what he calls the moral imperative, “the pursuit of deep learning goals enabled by new pedagogies and accelerated by technology”.

### CHANGE PROCESS

- ✓ Foster deep commitment to the moral imperative
  - ✓ Design a small number of ambitious goals defined by the imperative
  - ✓ Develop enabling processes, measures and tools
  - ✓ Invest in focused capacity-building, centered in learning partnerships
  - ✓ Continuously measure and analyze what is working, learning from the work
5. The following is a list of areas of focus that have emerged from the Round 1 and 2 innovation projects that you may be interested in drawing upon as you begin to mobilize for scalability and sustainability in your board. You may also find it useful for building partnerships, collaboration and/or discussions with coterminous boards.

### PEDAGOGY

- 21st Century Supports for Students with Special Education Needs: Strengthening evidence-base about the role of tablet/mobile technologies in supporting students with learning disabilities.
- 21st Century Assessment Practices: Applying a 21st Century approach (technology, pedagogy and content) to assessment for, of and as learning.
- 21st Century Technology-Enabled Differentiated Instruction and Personalized Learning: Providing models of, and evidence for the role of technology in facilitating teaching practice that offers personalized and differentiated learning to support student engagement and success.
- 21st Century Science and Innovation Focus: Strengthening the evidence-base and models for a 21st Century approach (technology, pedagogy and content) to improve integrated teaching and learning in science, student engagement and achievement.

*The key to system-wide success is to situate the energy of educators and students as the central driving force. (Fullan, 2011)*

### SYSTEM CHANGE/LEADERSHIP

- 21st Century Leadership: Advancing understanding of the 21st Century leadership skills and strategies required to initiate, sustain and build capacity for new pedagogical practices; foster a culture of collaboration and communication throughout the organization; how to lead the change that results in a “self-generating learning organization for all”. (Fullan)
- Alignment of Board Leadership Strategy with Ontario's Leadership Strategy and the Ontario Leadership Framework, 2012, focusing on 21<sup>st</sup> Century pedagogy and its implications.

*“Technology has enormous potential especially when it reshapes the different components, relationships, partnerships, and principles that are integral to learning environments.” (OECD, 2013)*

### TECHNOLOGY-ENABLED LEARNING

- Cloud-based Learning Environments: Strengthening the evidence-base to support planning for learning environments that include cloud-based, device-neutral, equitable access to quality, curriculum-based digital learning resources and tools.
- 21st Century School Libraries: Learning Commons and e-Readers: Strengthening the evidence-base available to support local and provincial planning for learning commons models of 21st Century school libraries, including, for example, outcomes associated with offering student choice in access to e-readers / e-books along with traditional print-based materials and seamless connections to public library e-books.
- 21st Century Quality Review of Digital Learning Resources: Advancing local and provincial understanding of possible one-window access for students and educators to a range of authoritative sources of quality curriculum-based digital learning resources; advancing local and provincial understanding of what digital resources are required to support learning and modeling effective use.
- Bring Your Own Device (BYOD): Advancing local and provincial understanding for applying a BYOD policy for teaching and learning, including but not limited to the following: classroom management; digital citizenship and digital literacies; equity; teacher training and support; network considerations etc.

*For more information on the Ministry of Education's 21<sup>st</sup> Century Teaching and Learning Initiative please see the Quick Facts and [www.edugains.ca](http://www.edugains.ca)*