New Pedagogies for Deep Learning Narrative

Bringing Deep Learning to Life - The story behind the development of the Suite of Tools for New Pedagogies for Deep Learning: A Global Partnership

Authors: Joanne McEachen and Jane Davidson, Ph.D.

Published by: New Pedagogies for Deep Learning

July 2014

For more information about New Pedagogies for Deep Learning visit www.npdl.global

Introduction

New Pedagogies for Deep Learning is a global innovation partnership that brings to life the transformational concept of ***Deep Learning***, as conceptualized by worldwide authority on educational reform, Michael Fullan and an emerging Global Partnership. He asserts that learning is to be "irresistibly engaging and relevant, uses information that is elegantly easy and efficient to access, features the ubiquitous use of digital for (inter) active learning 24/7, is creative and change-focused not passive and is steeped in real life (local and global) problem solving." (Fullan & Scott, 2014, p. 6), and education needs to equip learners with the personal, interpersonal, and cognitive capabilities that will allow them to flourish in a complex world and become 'ethical entrepreneurs' (Fullan & Scott, 2014, p. 4).

Deep learning experiences are dramatically different from the traditional way that teaching and learning has been since the Industrial Age. In the context of a genuine learning partnership with parents and teachers, students are given, or asked to identify a real-world problem or issue relevant to them. Then they scope an inquiry into it, identifying and sourcing information that they will evaluate and synthesize to collaboratively generate a solution and new knowledge that will be applied in the real world, making judicious use of technology to deepen the learning process. Deep learning requires the development of competencies in the following six areas: Character, Citizenship, Collaboration, Communication, Creativity and Critical Thinking.

To implement deep learning and the new pedagogies needed to bring it to life, the Global Team[1] supported by a Global Partnership, works with 'clusters' in 10 countries to provide concepts, guidance, tools, frameworks, learning labs, and a digital learning and resource platform to:

- Develop the system conditions required for deep learning
- Build the pedagogical practices needed to bring deep learning to life
- Assess and track Deep Learning Competencies in students.

Implementation is guided at every level by a Collaborative Inquiry Cycle[2] (Assess; Design; Implement the Learning; Measure, Reflect & Change).

In the early stages, the key frameworks and tools supporting the international innovation partnership were (a) the writings of Michael Fullan and colleagues about deep learning and whole system change; (b) initial guidelines regarding the structures and process needed to set up a cluster and select the 100 schools that would be involved; (c) the Collaborative Inquiry Cycle; (d) a set of learning design scoring rubrics, drawn from the ITL Research Initiative (21st Century Learning Design Rubrics for Learning Activities and Student Work), whose "21st Century collaborative new learning" approach had some synergies with the deep learning

[1] Michael Fullan, Global Leadership Director; Joanne Quinn, Global Capacity Building Director; Joanne McEachen, Global New Measures Director; Greg Butler, Global Partnerships Director; Dolores Puxbaumer, Global Communications Director. The Global Team are governed by a full board, work in partnership with governments, education providers and businesses.

[2] Collaborative Inquiry Cycle developed by Joanne Quinn, is based on Helen Timperley's framework – Teacher Inquiry and Knowledge-Building Cycle -to promote valued student outcomes.

concepts; and (e) an outline of the key components that would make New Pedagogies for Deep Learning happen – as summarized in Figure 1.

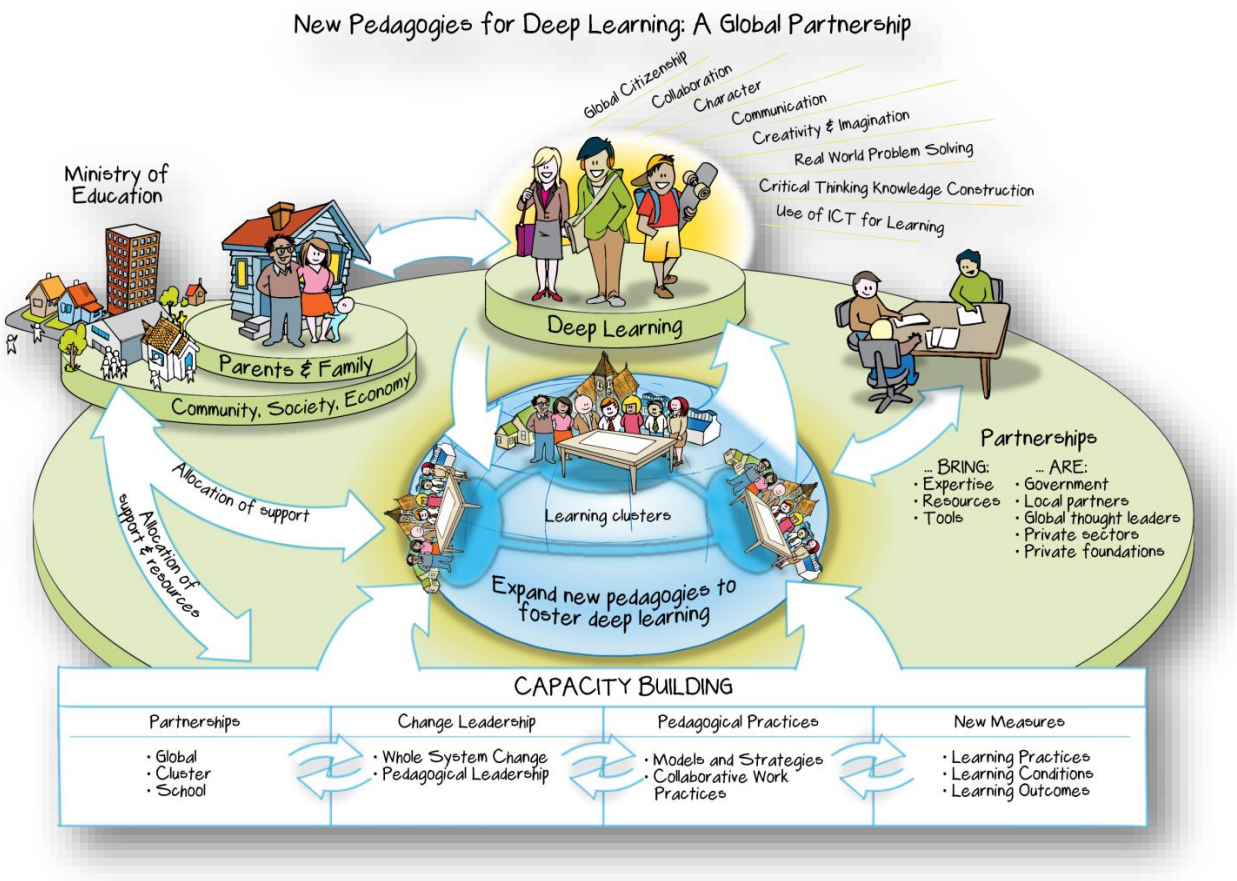

Figure 1. Early diagram of the New Pedagogies for Deep Learning "Living and Learning System"

These early frameworks and tools provided the foundation for Cluster Leaders to mobilize locally and develop a basic structure that would support initial conversations with schools and educational partners about what deep learning means to them in their local context. Further clarity about the details of what success would look like at each level of the system was required if New Pedagogies for Deep Learning was to realize its potential. For them, that was the key to both, getting buy-in from across the system and working out how to make it happen.

To get things started, every level of the system needed to implement the Collaborative Inquiry Cycle to transform learning (Figure 2).

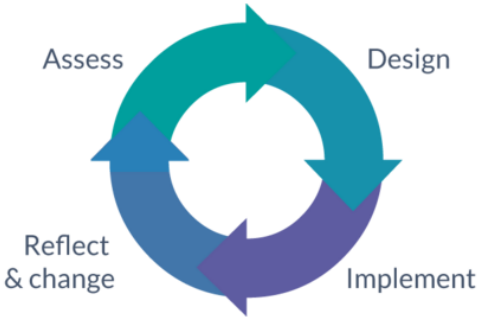

Figure 2. The Collaborative Inquiry Cycle

The first step is to **assess** strengths and gaps. That requires a clear picture of:

- what it looks like when the right conditions are in place to effectively mobilize deep learning (at

the educational system, cluster, and school levels);
- the new pedagogical knowledge, skills, and know-how needed by teachers to effectively design and implement deep learning experiences;
- what a good deep learning experience looks like;
- how proficient individual learners currently are in each of the six Deep Learning Competencies.

None of the existing tools or frameworks could provide that clarity. It wasn't just that each level needed its own clarity about what success (and their current baseline state) looked like. As parts of an interconnected system, they also needed to be clear about what they could reasonably expect from the other parts of the system that would enable and empower them to make the needed changes and eliminate the all-too-common feeling of being constrained by the larger system.

Based on our understandings of deep learning and our collective experiences effecting system-wide educational change, the need for a wider Suite of Tools than originally conceptualized was needed. The tools needed to provide a high-level picture of how well each cluster was developing the Learning Conditions (for the educational system, for the cluster, and for schools), the New Pedagogies (for teachers), and the Deep Learning Competencies (for learners).

The Global Team mapped out what we needed against a high-level theory of change for New Pedagogies for Deep Learning, and identified the places where we needed tools to clarify what success looked like. These are the green arrows in Figure 3.

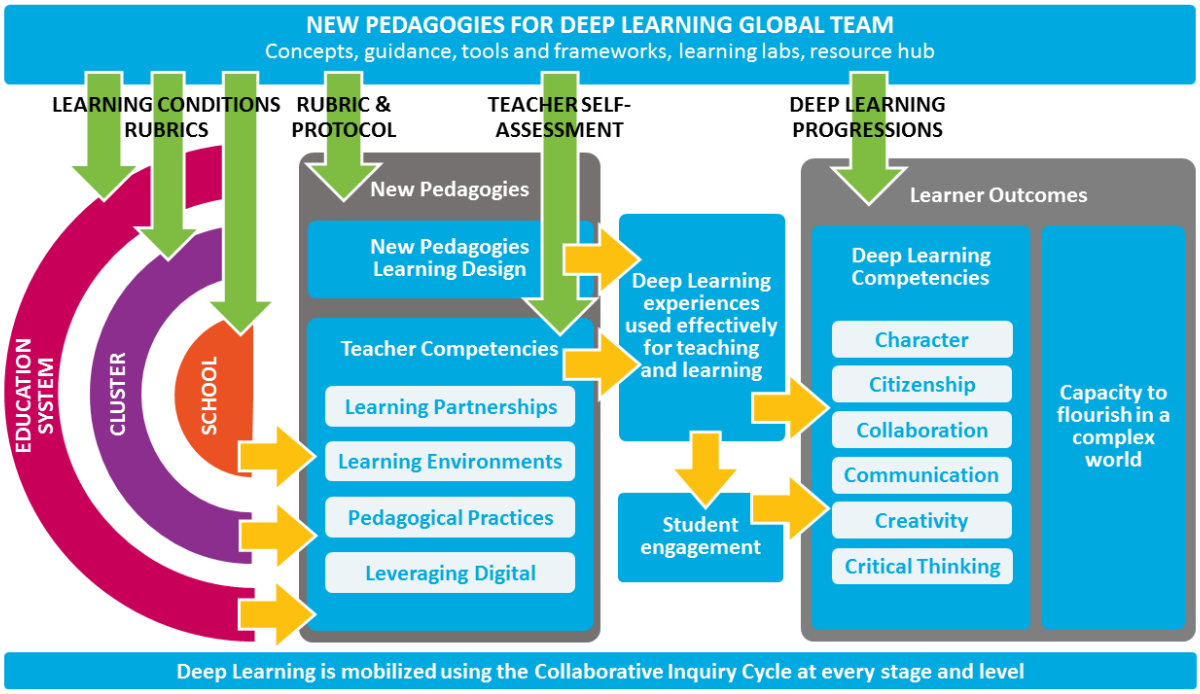

Figure 3. A high-level theory of change for New Pedagogies for Deep Learning, showing the areas where tools were required

What are the Deep Learning Progressions based on, and how were they developed?

Deep Learning Progressions: *Character; Citizenship; Collaboation; Communication; Creativity; and Critical Thinking.*

The starting point for developing the Deep Learning Progressions built on Michael Fullan's concept of Deep Learning, which he has published in the education literature (Fullan, 2010, 2011, 2013; Fullan & Scott, 2014; Fullan & Langworthy, 2014). A key piece was the six Deep Learning Competencies identified in Ontario, Canada which Fullan had described, but not yet to a level where they could be operationalized or made measurable.

It is important to note that, when breaking very new ground, and bringing the deep learning concepts to life, there are simply no existing assessment instruments that can adequately measure Deep Learning Competencies. Further, deep learning is qualitatively different from the kinds of knowledge and skills we usually assess in education, and cannot be adequately understood without a broad range of evidence. The deep learning experiences in which the competencies are observed and developed also vary widely, which means that the exact mix of evidence used should vary each time.

Assessing student's levels in the six Deep Learning Competencies –Character, Citizenship, Collaboration, Communication, Creativity and Critical Thinking – cannot simply be done with a multiple choice, traditional structured, or closed response assessment items. Teachers need to interactively observe students as they work through their deep learning experiences (which can run for days, weeks or months); they need to question students about their cognitive and collaborative processes; they need to critically evaluate the quality and value of the solutions generated and the testing/application process used. They need to speak with students and their parents about how any insights or competencies are being used outside the school environment. They need to formally or informally assess the content knowledge or insights generated from the experience, in line with curriculum expectations.

All of these sources of evidence would be considered together to come to an overall professional judgment about how well each student has developed each of the Deep Learning Competencies targeted. Just like many of the more complex competencies we assess in work performance – e.g., leadership, teaching, surgery, academic contributions to disciplines like education or psychology – by far the most valid 'instrument' is the expert judgment of a well-informed professional, based on the appropriate broad mix of evidence, rather than a single precise instrument that only samples a small part of the competency construct.

Therefore, the first task was to adequately flesh out the Deep Learning Competencies, which we did by drawing on Fullan's work, relevant literature from cognitive psychology, organizational psychology, and educational research. We combined this with our expertise in whole-systems change, assessment, and evaluation to develop valid, practical tools that captured the full, broad essence of the key concepts with the right mix of clarity and flexibility.

Although the theoretical and empirical basis for the Deep Learning Progression constructs is sound, the real proof of their validity and utility is to be tested in the field. Leaders, teachers, students and learners will need to use the tools and see if they do in fact help them to understand the learning process for deep learning, build their capacity to shift practice, and if learners actually become more proficient in the competencies.

"In the New Pedagogies … we use our schools, families, and communities for learning through doing and reflection, as living laboratories for learning, transformation, and research" (Fullan & Scott, 2014, p. 7). The Deep Learning Progressions take the best that we know from the formal knowledge base, and blend it with real-world expertise. The Deep Learning Progressions will be further refined over time, informed by field testing and practice-informed theory. When breaking new ground, we need to be able to innovate, and this is a first step.

How was the Learning Design Rubric and Protocol developed along with the Teacher Assessment Tool?

New Pedagogies Learning Design Rubric; *New Pedagogies Learning Design Protocol*; *Teacher Self-Assessment Tool*.

The Global Team understood that teachers would require systematic support in:

- Identifying, developing and designing learning experiences embedded in new pedagogies to deliver deep learning outcomes accelerated and deepened by digital
- Building capacity
- Supporting schools, clusters and systems in the key areas of: learning partnerships, learning environments, and pedagogical practices and leveraging digital.

Rather than creating templates for lesson design or style guides, we opted for a matching protocol aligned with the Collaborative Inquiry Cycle. Recognizing that teachers would want support and professional learning with implementation with deep learning we needed a way for them to identify what support they require, so we developed a Teacher Self-Assessment Tool.

What are the learning conditions rubrics based on, and how were they developed?

Whole System Conditions for Deep Learning Rubric, *Cluster Conditions for Deep Learning Rubric*, *School Conditions for Deep Learning Rubric*

Based on our theory of change, we split the task into three levels, looking at the key learning conditions that should be in place in the educational system, in the cluster, and in schools.

There are many things that might affect how well a system supports genuine education innovation such as deep learning, so one challenge was to concentrate on the key factors that would make or break success. To identify these, the Global Team drew on our own expertise as system leaders who have effected serious positive change in real-world settings, as well as evidence of what has worked around the world in educational system change (Fullan, 2011).

This allowed us to identify a short list of key factors, and to describe what it looks like as each part of the system develops the right learning conditions.

One challenge was that New Pedagogies for Deep Learning was being implemented in 1,000 schools spanning 10 countries, each with their own unique cultural contexts and education systems, and with vastly different schools and learners. Accordingly, any newly constructed tools need to achieve a careful balance between creating a clear shared understanding of the

most important elements, but without over-specifying in ways that prevent appropriate interpretation for context.

In fact, the tools need to be *deliberately underspecified* so that they avoid the trap of becoming a simplistic recipe for implementation, but instead push people to have deep conversations about what success at each level would look like in their own context and for their own learners.

How was the Suite of Tools designed to be used?

The intent was that the Suite of Tools would be used as the basis for a comprehensive monitoring system that captures evidence that could be synthesized in real time to answer key questions about how well things were going for each system, cluster, school, and student. How this works in practice is based around the Collaborative Inquiry Cycle at **all** of these levels.

Teachers use the Deep Learning Progressions to **assess** students' current levels on the six Deep Learning Competencies – Character, Citizenship, Collaboration, Communication, Creativity and Critical Thinking. They combine this with information about student achievement, interests, and aspirations to get a clear understanding of what each student needs to learn.

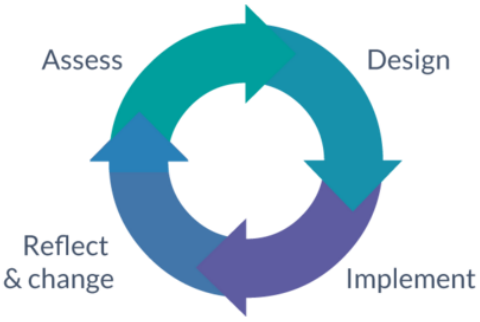

Figure 4. The Collaborative Inquiry Cycle

Teachers then use the Deep Learning Design Rubric and Protocol to **design** a deep learning experience, in partnership with students and families. They then **implement the learning** experience and follow its progress carefully, gathering a broad mix of evidence to see how well the desired Deep Learning Competencies are developing. The Deep Learning Progressions are used to **measure** the extent to which students acquire Deep Learning Competencies through the deep learning experience. Teachers, students, and families can then **reflect** on what worked and **change** the approach accordingly.

Prior to beginning this work, and on an ongoing basis, teachers need to use the self-assessment tool to identify the competencies they need to develop in order to effectively design and implement deep learning experiences. We expect teachers to go through a Collaborative Inquiry Cycle to learn together, develop deep learning experiences collectively, and build their own competencies – supported by schools, clusters, and systems.

Schools, clusters, and systems use the relevant rubric to **assess** the extent to which they have the learning conditions in place to effectively support and mobilize deep learning. They use the rubrics periodically as a framework to guide authentic learning conversations about their strengths and gaps, to **design** the right mix of approaches to build capacity, **implement** them, and to **measure** how well they have improved learning conditions, **reflect**, and **change** their approaches accordingly.

What about data collection exemplars, and inter-rater reliability?

Protocols are being developed around the collection of exemplars, data and capacity-building to ensure inter-rater reliability.

Who contributed to the development of the Suite of Tools?

Name & Position	Expertise	Role in Tool Development
Michael Fullan, Global Leadership Director	Worldwide authority on educational reform	Architect of New Pedagogies for Deep Learning
Joanne McEachen, Global New Measures Director	Experience and success in conceptualizing and leading highly effective whole-system change internationally	Led the development of the Suite of Tools; co-authored the Deep Learning Progressions and the learning conditions rubrics (education system, cluster, & school).
Joanne Quinn, Global Capacity Building Director	Experience and success in whole-system change internationally, capacity building, leadership, and professional learning	Led the design of the Learning Design rubric, Learning Design Protocol, Teacher Assessment Tool and Implementation Diagnostic. She adapted the Collaborative Inquiry Cycle and contributed to the Learning. Progressions, in both development and refinement stages.
Greg Butler, Global Partnership Director	Global experience in partnership design, management and implementation, leveraging digital throughout education and business	Authored the Learning Design Rubric; contributed to the other rubrics and Learning Progressions, particularly the leveraging digital dimensions.
Jane Davidson, internationally recognized evaluation specialist	Pioneered the development of rubrics methodology for evaluation, assessment, and performance appraisal; multiple applications in educational settings, including for system-wide change with Joanne McEachen internationally	Facilitated the development of the theory of change (p. 4) and the rubrics/progressions; co-authored the Deep Learning Progressions and the learning conditions rubrics (education system, cluster, & school).
Clusters	Innovative partners and implementers engaging in “deep learning by doing”	Jointly innovating on how we enable and measure deep learning through a review cycle

The Global Team also would like to acknowledge Deidre Butler, Maria Langworthy and cluster representatives from the following countries: Australia, Canada, Denmark, Finland, Japan, The Netherlands, USA and Uruguay. The Clusters as innovative partners and implementers are engaging in “deep learning by doing” as they work out the best ways to implement deep learning in their context.

We also would like to thank the New Measures Advisory Board: Roger Blamire, European SchoolNet; Deirdre Butler, St. Patrick’s College - Dublin City University; John Hattie University of Melbourne; Peter Hill, Education Consultant; Daniel Light, Center for Children and Technology; Jon K. Price, Intel Corporation; Russell J. Quaglia, Quaglia Institute for Student Aspirations.

The Global Team are reviewing the Suite of Tools periodically, to ensure validity, utility, and practicality, after clusters have had an opportunity to jointly innovate on how we enable and measure deep learning.

Our work’s greatest strength lies in collaboratively creating new knowledge and working as partnering activators. The Suite of Tools impact will be fully utilized when we all collectively engage as learners, ready to take and share risks in advancing our thinking and shifting our practice. It is about the art of taking action and innovating, then to learn from what works and what doesn’t, to adapt and innovate again.

This will enable us all to become living learners.

References

Assessment and Teaching of 21st Century Skills project. Retrieved from http://atc21s.org

Conley, D.T., & Darling-Hammond, L. (2013). *Creating systems of assessment for deeper learning*. Stanford, CA: Stanford Center for Opportunity Policy in Education

Davidson, E. J. (2013). *Actionable Evaluation Basics: Getting succinct answers to the most important questions. Real Evaluation*. http://www.amazon.com/gp/aw/d/1480102695/

Fullan, M. (2010). *All Systems Go: The Change Imperative for Whole System Reform*. Thousand Oaks, CA: Corwin.

Fullan, M. (2011). *Choosing the Wrong Drivers for Whole System Reform*. Centre for Strategic Education, Seminar Series 204.

Fullan, M. (2013). *Stratosphere: Integrating Technology, Pedagogy, and Change Knowledge*. Toronto: Pearson.

Fullan, M. (2014). *Big City School Reforms Lessons from New York, Toronto and London*. Toronto, Ontario Principals Council: NY, Teachers College Press

Fullan, M. & Donnelly, K. (2013) *Alive in the swamp: Assessing digital innovations*. London: Nesta; Oakland, CA: New schools venture funds.

Fullan, M. &Langworthy, M. (2013) *Towards a New End: New Pedagogies for Deep Learning*. Retrieved from http://www.newpedagogies.org/

Fullan, M. & Langworthy, M. (2014) *A Rich Seam: How New Pedagogies Find Deep Learning*, London: Pearson.

Fullan, M. & Scott, G. (2014). New Pedagogies for Deep Learning Whitepaper: Education PLUS The world will be led by people you can count on, including you! Seattle, WA: Collaborative Impact SPC.

McEachen, J. & Davidson, E. J. (2014). *Moving Forward 3: Tools for Implementation*. Seattle, WA: Collaborative Impact SPC.

Timperley, H. et al. (2007). *Teacher Professional Learning and Development: Best Evidence Synthesis Iteration [BES]*. Wellington, New Zealand: Ministry of Education.