Education and Innovation Theme

Programs to Improve Teaching in Schools
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Grattan Institute: Programs to Improve Teaching in School

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The adoption of the Common Core State Standards by 46 states and the District of Columbia marks a watershed moment in U.S. history. For the first time, students across the country will be expected to reach the same set of expectations, benchmarked against those of top-performing nations. The standards are clearer, higher, and fewer than those previously enacted by individual states and jurisdictions—designed to prepare students for the rigors of college-level work.

The changes for students and teachers are significant. The literacy standards expect students to read a variety of informational texts across all content areas, not just in English classes; to understand texts that have higher levels of complexity; and to write explanatory, narrative, and argumentative products that draw closely on evidence from what they have read. (1) The math standards ask students to focus on fewer concepts with greater depth, to develop procedural skills and fluency, and to know which procedures and concepts to apply toward unfamiliar and challenging problems. Students are expected to reason abstractly, justify their responses, and make arguments, not just engage in rote calculations. (2)

As strong supporters of the Common Core State Standards, we knew even before they were adopted that the standards would require deep shifts and improvements in teaching practice. For example, in math, teachers must not only assess a student's ability to do a procedure but the depth of their conceptual understanding. The literacy standards ask teachers of history, social studies, science, and career-technical subjects—not just English Language Arts teachers—to use their content expertise to help students read, write, speak, and listen using the texts in their disciplines. This means student assignments must be content rich and literacy saturated, even though most subject-matter teachers beyond the elementary grades have never been prepared to teach reading and writing and have not considered it part of their job.

Moreover, based on observations of teaching practice from the Measures of Effective Teaching project, a foundation-funded study involving nearly 3,000 teachers in the U.S., the vast majority of teaching practice today can at best be described as "unambitious." While most teachers are proficient at managing classroom behavior and creating a climate of rapport and respect, very few are proficient with the types of practices that the new standards will require, such as higher-order questioning and supporting rich classroom discourse. (3)

With new assessments aligned with the Common Core State Standards scheduled to come on line in the 2014-15 school year, the foundation recognizes that the country faces a crucial window of opportunity to provide teachers with the tools and supports to move the standards from policy to practice. This is particularly crucial because large majorities of teachers currently support the Common Core, but less than one-quarter feel very prepared to teach to the standards. (4) That support could evaporate if, as in previous reform efforts, the adoption of standards and assessments is not accompanied by the "stuff" that teachers need--curriculum and instructional materials and professional learning opportunities—to translate the standards into good instruction.

So for the past two years, we have been supporting two communities of teachers, experts, and education organizations to co-design and field test tools and supports that are grounded in the Common Core but that also honor and encourage teachers' existing knowledge, school contexts, and creativity.

Known as the Literacy Design Collaborative and the Mathematics Design Collaborative, or LDC and MDC for short, these communities of practice now encompass more than 5,600 teachers and are growing rapidly. In the process, we've discovered powerful lessons about what helps shift teaching and learning in schools and how we might scale those efforts. We began with a few core beliefs.

First, we knew the tools needed to have a laser-like focus on the instructional patterns we were trying to shift. In math, that meant supporting teachers to give students' immediate feedback on their mathematical understanding, and to coach rather than tell students how to solve problems. In literacy, it meant scaffolding science and social studies teachers to instruct students in reading and writing skills without sacrificing their attention to content. And it meant helping English Language Arts teachers move beyond a sole focus on teaching narrative writing and fiction.

Second, we knew that the tools needed to be simple but elegant. They needed to keep enough in common across classrooms for the Common Core to be implemented with fidelity. And they needed to create a shared language among teachers that would enable lesson plans, best practices, and student work to travel across schools, districts, and states. Yet they also needed to be spare enough for teachers to insert them into their existing contexts without completely upending their teaching.

Third, they needed to find the right balance between "over-managing" and "under-managing" instruction, so that they honored teachers' creativity and expertise.

Fourth, we knew that the tools would have to help teachers address one of their biggest challenges: how to differentiate instruction to address the wide range of students in their classrooms, while still holding all students to the high expectations the Common Core demands. Teachers have identified this as one of their biggest concerns about the Common Core.

Fifth, we wanted teachers as co-designers and co-creators from the start, and we wanted their feedback and wisdom to allow the tools to evolve and improve over time.

Finally, we knew the foundation could never directly touch 3.5 million public school teachers, so we would eventually have to "let go" and figure out ways for the instructional shifts embodied in the tools to scale and spread without the intensive engagement and professional development entailed in the initial phases.

Engaging in Mathematical Practices

In math, the foundation has partnered with the Shell Centre to create a series of "formative assessment lessons" or "classroom challenges"—each conducted over several days—that secondary math teachers can drop into their existing courses approximately every two weeks. (5) The challenges all follow a similar pattern: A pre-lesson assessment, which is not graded, reveals students misconceptions about the material and prepares teachers for how to respond. Teachers meet together to analyze the data and

create questions that will push and probe students' thinking during the lesson itself. During the lesson, students work collaboratively in small mixed-ability groups to engage in what Ann Shannon, one of the MDC designers, calls a "productive struggle" with mathematics. Through accountable, mathematical talk with each other, students engage in challenging one another's thinking and justifying their reasoning, providing all students with access to deep mathematical concepts. During this time, the teacher works with individual teams, using some of the feedback and oral questioning prepared beforehand to address both common misunderstandings identified from the pre-assessment and individual student's challenges. The lesson can be followed by summative assessment tasks to help monitor students' progress over time. MDC also provides teachers with Professional Learning Modules designed to help them with the mathematical and pedagogical content knowledge needed to implement the lessons. To date, the Shell Center has created 60 tasks for secondary schools.

Hard-wiring in Literacy Shifts

The Literacy Design Collaborative tasks are somewhat different. (6) They take the form of "templates," or fill-in-the-blank prompts. English, social studies, and science teachers customize the templates by inserting their own content—both texts and writing tasks—based on the content of their discipline, the needs of their students, and their creativity. When teachers add their reading and writing assignments, they will have created a teaching task that typically takes two to four weeks of class time to complete.

The Common Core standards are hard-wired into the templates to facilitate both student literacy and content learning, and to provide teachers with feedback about student performance. An LDC module structure helps teachers identify the skills students will need to complete the classroom assignment and the instructional strategies and "mini-tasks" the teacher will provide to enable that learning. Finally, a scoring rubric helps guide teachers in how to provide feedback on student work and provides a common language and framework for teachers to share student writing with each other.

A set of 29 templates enable teachers to craft lessons and assignments that focus on informational and explanatory, narrative, or argumentative writing, and to address the varying needs of students by adjusting both the complexity of the texts assigned and of the writing assignment given to individual students.

Kathy Thiebes, an economics teacher in Portland, Oregon, says, "By working with the LDC framework, I have learned that there is a way to support teachers with an effective curriculum structure while also respecting their creativity and intellectual talent."(7)

Thiebes, who calls the tasks "teacher candy," writes: "They make my life easier and support my teaching by providing structure without dictating my content. The template tasks have also given teachers a common language for talking about how to develop curricula driven by the Common Core State Standards. As a result of LDC, I have seen enormous growth in my students' learning. They are more confident approaching reading and writing assignments. Using LDC tools helped me to eliminate my assumptions about their literacy skills and to teach in a way that supports and challenges all types of learners." (8)

Early Results

Her views are echoed in early findings from a research study launched in 2010-11 by Research for Action (RFA). In a report released this fall, based on two years of implementation, RFA found:

- 96 percent of LDC teachers surveyed say writing assignments allow students to develop a strong understanding of content.
- 98 percent agree that content-area teachers should help students improve their literacy skills.
- 75 percent say LDC is an important part of their instructional practice, including 82 percent of teachers who have been using the modules for two years. Nearly three-quarters of teachers indicate that using modules helped them develop new ways to teach literacy skills in their content areas, with that figure rising to 84 percent for those who had more experience using the modules. (9)

While teachers in year one reported that the process of developing modules was challenging, those in year two reported that it got much easier. As one experienced high school science teacher said: "For me, as a teacher, I'm always really scared of writing, reading, because that's why I went into science … I want to bypass all of that stuff. And I'm being forced to—in a good way—forced to think differently. And I'm sure my students are going to be forced to think differently also in a science class, because they're used to not having to write and read." (10)

In fact, more than 8 in 10 teachers say the modules led them to raise their expectations for student writing, and similar proportions say the modules have resulted in higher quality student writing. More than 8 in 10 say the modules help increase the rigor of both reading and writing assignments, and 75 percent say they help them provide students with detailed feedback about their writing.

Early results from MDC are similar. The vast majority of MDC teachers surveyed agree that the instructional strategies at the heart of MDC—asking students guiding questions, peer-to-peer problem solving, taking on the role of facilitator or coach, and providing class time for students to engage with difficult math problems—are effective for strengthening students' mathematical understanding. Among the more experienced teachers, 84 percent report the Formative Assessment Lessons have become an important part of their instructional practice. (11)

Teachers also report that the MDC tasks are helping create an environment that promotes mathematical discourse, and that they have raised their expectations of student work. Almost two-thirds of teachers indicate their students are more engaged using the MDC lessons compared to teachers' normal instruction.

As intended, both MDC and LDC teachers say the tasks are helping them implement the Common Core State Standards, with that figure rising to 91 percent among those who have more experience using the LDC materials and 82 percent of those using the MDC materials.

As Michele Honeycutt, a math teacher, wrote: "The Formative Assessment Lessons (also known as Classroom Challenges) have been a great resources for me to understand what student mastery of a

cluster of the Common Core State Standards should look like. They have provided me with a structure to analyze how my students are actually thinking about a task or activity within a unit, which in turn has helped me to understand their misconceptions. I now allow class time for discussing those misconceptions … Changing the way I enact formative assessment in my classroom has redefined my teaching." (12)

Research for Action is now working with three quantitative research partners—CRESST at the University of California-Los Angeles, Measured Progress, and SCALE, to conduct a study that will use a rigorous quasi-experimental design to examine the impact of the LDC and MDC tools on student learning and teacher effectiveness. The study also will examine the extent to which variations in the fidelity of implementation affects student learning, and the conditions and contexts needed for successfully using the tools with fidelity.

Going Digital, Going Viral

One of the hallmarks of the LDC and MDC work has been the iterative cycle of "co-create, learn, and improve" engagement with teachers to ensure the tools work in real classrooms across America. This collaborative process has led to amazingly rich professional learning for everyone involved, affectionately dubbed "My Group Genius" to reflect the joint nature of the work.

But in 2011-12, as we began to think about scale, we realized that we would have to figure out how to help the tools travel well without such intensive engagement and support—while building on the features of peer-to-peer learning.

One step in that direction is "Module Creator," an online tool designed to make LDC module development easier for teachers. Through this tool, developed by Metametrics, teachers work their way through an electronic document to fill in a template task. They also can access reading and writing strategies or mini-tasks; use or adapt other teachers' assignments; and, for a fee, districts can access an extensive online library of texts, which teachers can search by content and reading difficulty. The vast majority of teachers who have used the tool report it is helpful. And it has the potential to give far more teachers far greater access to LDC and the central ideas in the Common Core.

Two of the foundation's partners, the National Paideia Center and New Visions for Public Schools in New York, are currently working with Metametrics to create an online tool, "Course Creator," to help educators connect four to six LDC modules over a year-long course, including thinking about how to move from highly supported to more independent learning experiences for students as they gain confidence. For example, teachers can use resources from the course-design tool to work with students to self-assess the reading and writing skills they need to work on between modules, and to access or design lessons to bolster those skills.

As we look ahead toward 2025, our goal is that the LDC system will reach approximately 15 percent of teachers in the U.S., helping to cement teacher understanding and practices rooted in the Common Core.

To meet that goal, we are increasingly focused on how digital and how viral we can go in helping teachers learn through online and teacher-to-teacher networks. One can imagine two different teacher scenarios that illustrate this increasingly blended learning model for professional development and knowledge sharing:

Maria is a high school science teacher. She heard about LDC through other teachers on Edmodo, an education-focused social network platform. She clicks on a link provided by a friend and arrives at an LDC on-line co-op. She registers as a "beginning teacher" and gets six months of free access to tools such as Module Creator and video training. She spends prep time watching videos, visiting blogs and chat rooms, and looking at exemplar modules posted online. She begins creating her own tasks and modules, and accesses the Open Text Bank to find reading assignments appropriate to her content and the varied reading levels in her classroom. Before teaching her first module, she engages in two hours of free online coaching from an experienced LDC teacher who earns "points" for contributing to the LDC co-op. During her first module, she logs in to check blogs for advice. After her first module, she engages in more online coaching to learn from her experience before working on her next module. By the end of the six months, Maria has begun publishing modules and commenting on the work of fellow co-op members. She contributes enough to the co-op to maintain her free membership.

Matthew is a middle school English Language Arts teacher. His state began implementing LDC last year. Including a couple of teachers in a school down the street from him, and he's heard good things about the work and the results. His assistant principal asks Matthew to participate in LDC. Over the summer, Matthew joins teachers from across his district for a two-day introduction to LDC. The session Is led by trainers from his state department of education, who were trained by a certified LDC technical assistance provider. The provider has a statewide contract that combines direct training with train-the-trainer support. Matthew's time in the two-day session is paid for through district funds. Matthew gets a log-on for Module Creator, which links to his district's access to an extensive library of on-line texts that he can draw on to create his LDC modules. He arrives back at school armed with new strategies to try in the classroom. He periodically logs on to his state website, where he accesses his Module Creator log-in. There's also a chat room of other middle school English Language Arts teachers implementing LDC in his state. In the late fall, he has a one day off-site workshop, where he reconnects with his original group for further training. This day is part of a standard professional development day, which was used for a different purpose last year. Matthew continues to use the LDC framework throughout the year and becomes an advocate for it among his colleagues. The next year, a new set of teachers from his school receive the training. Matthew provides informal coaching to them as they move through their first year of LDC work. He also does a one-day LDC refresher once per year.

To prepare for these scenarios, in 2013, the foundation is building the online community and tools to enable virtual participation and lay the foundation for the co-op, by building social or professional networking functionality inside Module and Course Creator.

We're also launching the T2X, or teacher-to-teacher, project, in which teachers who have become experts at the LDC system agree to provide virtual mentoring for 10 other teachers who are first-time

users. These teacher cadres will train others in LDC and, eventually, could earn professional recognition or credentials for their expertise.

At the same time, we are investing in innovative approaches to delivering professional development that move away from "sit and get," one-size-fits-all models of professional development to more personalized, anywhere-anytime models enabled by technology.

Both LDC and MDC teachers have been clear about the additional support they need to design and use high-quality assignments. For example, the RFA research found that many teachers are adapting LDC modules to meet the needs of diverse students, including: using different levels of text for different students; assigning students different kinds of writing products; using mixed level pairs or groups so students can learn from each other; and providing extra help and scaffolding for struggling students. But while 64 percent of teachers agree the modules are flexible enough to fit the needs of their students, 77 percent requested additional professional development in this area. (13)

Similarly, the vast majority of MDC teachers report the tasks help them provide differentiated instruction to their students who struggle with mathematics (87 percent) and to their students with advanced math skills (92 percent). However, as with LDC, at least a quarter of teachers are experiencing challenges differentiating lessons for special education and English language learner students and would like more help differentiating instruction when using the lessons. (14)

A recent research project supported by the foundation found that the majority of teachers want professional development to be: data-driven, relevant to their day-to-day work, differentiated based on their needs and choice, based on teacher collaboration, linked to real-time feedback and follow-through, and accessible and delivered through a variety of channels.

During the past year, the foundation has begun to make some investments to catalyze this innovative professional development landscape. For example, we are partnering with Tutor.com, BetterLesson, and LearnZillion to increase the number of teacher-developed lesson plans, courses, and videos grounded in the Common Core that can be shared across schools, districts, and states.

Reach Associates, one of the founding members of the Literacy Design Collaborative, recently launched R-GroupSpace, which allows teachers to connect online with other teachers regarding LDC and literacy, to blog and ask questions of the LDC community and teacher coaches, and to access each other through asynchronous communities in which they develop modules and receive feedback. Through a grant to the University of Central Florida's TeachLive project, we're also supporting virtual classroom simulations that enable teachers to see what teaching an LDC module is like before trying it out in their classrooms.

We are optimistic that these investments will address two of the biggest critiques of standards-based reforms in the United States in the past:

- The lack of curriculum resources, tools, and supports to help teachers implement the standards, and

- The top-down nature of standards development and implementation, which undercut teacher ownership and failed to build upon their expertise and creativity.

What we've learned is that to sustain standards-based reform—and make it real in classrooms—teachers must lead the change we seek.

Footnotes:

(1) www.corestandards.org/the-standards
(2) www.corestandards.org/the-standards
(3) "Gathering Feedback for Teaching: Combining High-Quality Observation with Student Surveys and Student Achievement Gains," Bill & Melinda Gates Foundation, Seattle, WA, January 2012.
(4) *Primary Sources 2012: America's Teachers on the Teaching Profession, A Project of Scholastic and the Bill & Melinda Gates Foundation,* Scholastic, September 2012.
(5) http://www.mygroupgenius.org/mathematics/
(6) http://www.literacydesigncollaborative.org/
(7) *Teacher Candy,* Kathy Thiebes, 2012.
(8) *Ibid*
(9) "Robust Implementation of LDC: Teacher Perceptions of Tool Use and Outcomes," Research for Action, Philadelphia, PA, September 2012.
(10) *Ibid,* page 14.
(11) "Robust Implementation of MDC: Teacher Perceptions of Tool Use and Outcomes," Research for Action, Philadelphia, PA, September 2012.
(12) *Sold!,* Michele Honeycutt, 2012.
(13) "Robust Implementation of LDC," 2012.
(14) "Robust Implementation of MDC," 2012.