Brief One

LDC and MDC Theory of Action and the Landscape of Implementation

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RESEARCH for ACTION

About Research for Action

Research for Action (RFA) is a Philadelphia-based nonprofit organization. We seek to use research as the basis for the improvement of educational opportunities and outcomes for traditionally underserved students. Our work is designed to strengthen public schools and postsecondary institutions; provide research-based recommendations to policymakers, practitioners and the public at the local, state and national levels; and enrich the civic and community dialogue about public education. For more information, please visit our website at www.researchforaction.org.

Acknowledgments

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Introduction

To support the implementation of the Common Core State Standards (CCSS), the Bill and Melinda Gates Foundation invested in the development and dissemination of two tools aimed at operationalizing classroom instruction based on the standards: the Literacy Design Collaborative (LDC)'s Framework and the Math Design Collaborative (MDC)'s Formative Assessment Lessons. These tools stress teachers' attention to high quality instructional tasks (City, Elmore, Fiarman, & Teitel, 2010; Hiebert & Carpenter, 1992; Hiebert & Wearne, 1993; Jones, Valdez, Nowakowski & Rasmussen, 1994), use of formative assessments embedded in those tasks (Black, Harrison, Lee, Marshall & William., 2004; Clarke & Shinn, 2004; Fuchs, 2004; Tunstall, 1996), and professional learning opportunities that focus on both content knowledge and instruction (Birman, Desimone, Porter & Garet, 2000; Cohen & Hill, 1997; Kennedy, 1998).

Experts from the **Literacy Design Collaborative (LDC)** have developed a **Framework** that can be customized by English Language Arts (ELA), social studies and science teachers into writing tasks designed to facilitate CCSS-based student literacy and content learning. LDC also developed a module structure that teachers can use to create a plan for teaching students the content and literacy skills necessary to complete the writing task. For example, a social studies teacher might teach a template task that asks students to write an argumentative essay on how the political views of the signers of the Constitution impacted the American political system. The entire process takes approximately two to three weeks of classroom time to complete.

Similarly, experts from the Shell Centre have developed a set of **Formative Assessment Lessons (Lessons)** for secondary mathematics teachers to facilitate CCSS-based student mathematics learning and provide teachers with feedback about student understanding and mastery. Unlike the LDC Framework, the Lessons are not customizable and typically take a few days to complete rather than few weeks. Another key difference between the modules and the Formative Assessment Lessons is that modules can be utilized to teach new content whereas Formative Assessment Lessons are meant for gauging student mastery and/or reinforcing already-taught material. For this reason, Lessons are intended to be taught about three quarters of the way into a unit.

Research for Action (RFA) began examining the implementation of this initiative in its pilot year of 2010-2011 (Year One), and has continued this research into the 2011-2012 school year (Year Two),

which has seen the expansion of the use of the tools. The results of our research at the end of the second year of the initiative are presented in four Research Briefs, which are related but are also designed to stand alone:

LDC and MDC: Implementation and Scale-Up Status

Brief One. LDC and MDC: Theory of Action and the Landscape of Implementation

Brief Two. Robust Implementation of LDC: Teacher Perceptions of Tool Use and Outcomes

Brief Three. Robust Implementation of MDC: Teacher Perceptions of Tool Use and Outcomes

Brief Four. Conditions for Scale and Sustainability

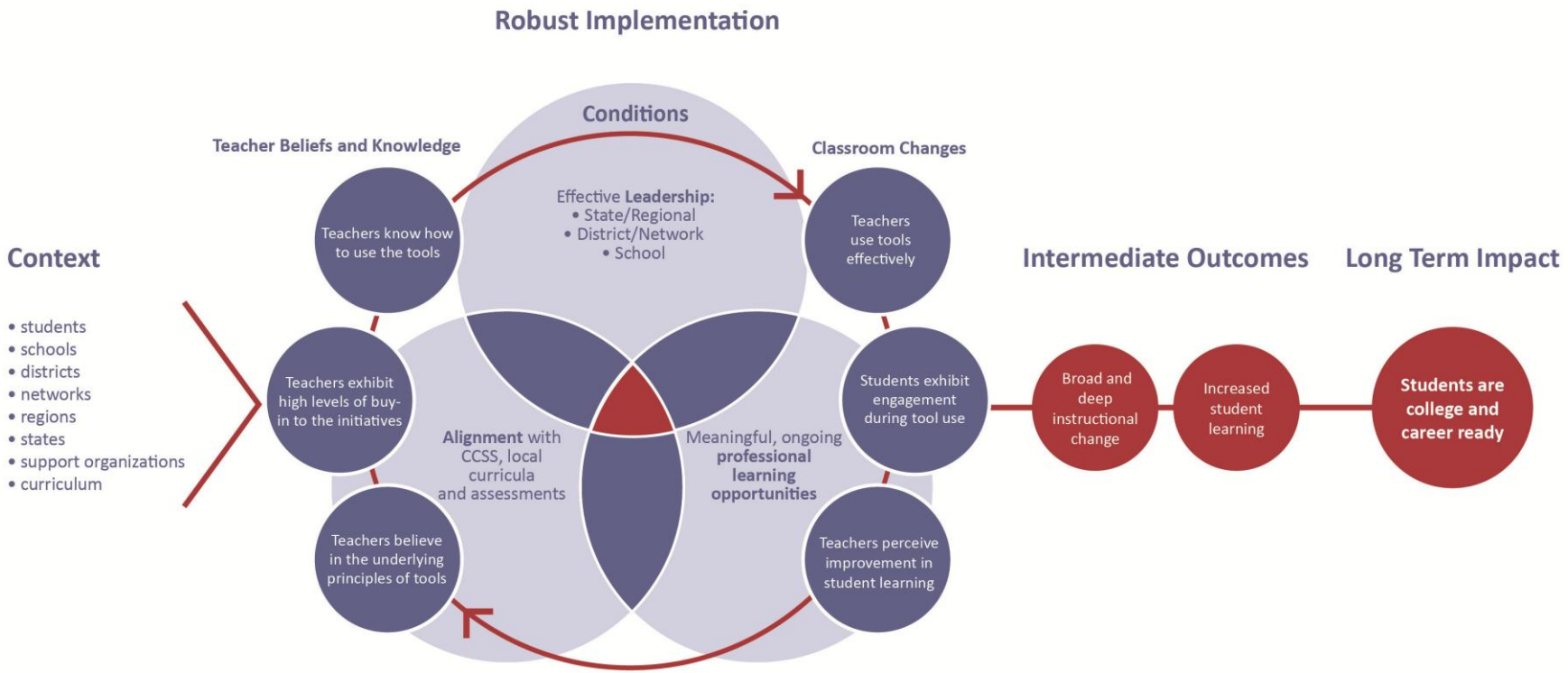
The first of four briefs on the LDC/MDC initiatives, Brief One presents key background information that will be referred to throughout the other three briefs. To describe the implementation and the scale-up of the LDC/MDC initiative, this brief includes:

- the Theory of Action, which provides a comprehensive organizing framework for the presentation of our research results;
- a national overview of the initiative, highlighting the extent of training on the LDC and MDC tools across the United States;
- a detailed look at changes to the number of schools and teachers involved across Research for Action's four LDC and four MDC study sites;
- a description of our research methodology; and,
- a short summary of Briefs 2, 3, and 4.

Theory of Action

The Theory of Action depicts the underlying assumptions and conditions on which the LDC and MDC initiatives are based. Drawing on the goals of the LDC/MDC initiatives, our own research, and existing research on similar initiatives, the Theory of Action is presented below in Figure 1. Each element of the Figure is then described briefly.

Figure 1. Theory of Action



Context

Although individual teachers use the tools in a classroom setting, contextual factors influence their use. The Theory of Action identifies broad categories of such contextual factors, including students, schools, districts, networks, regions, states, support organizations, and curriculum.

Indicators of Robust Implementation

RFA developed the indicators of Robust Implementation after a thorough analysis of data collected through interviews with PD providers and tool developers and review of program documents. This analysis informed the identification of robust indicators, as well as the larger theory of action for the initiative. Circling the conditions in the center of the Theory of Action, these indicators represent the use of the tools in the classroom, and the changes expected in teacher practice and student behavior as the tools are implemented. Robust implementation is manifested in two main arenas: Teacher Beliefs and Knowledge, and Classroom Changes. Each is described below.

Figure 2. Indicators of Robust Implementation: Teacher Beliefs and Knowledge

Robust Implementation Indicator	Definition
Teachers believe in the underlying principles of tools	**LDC:** Traditionally, elementary English or Language Arts classes are responsible for teaching literacy. As secondary content-area teachers begin to include literacy instruction in their courses by using LDC, it is important for them to believe that literacy instruction is a valid and worthwhile responsibility. **MDC:** The use of the Formative Assessment Lessons requires teachers to adjust their math instruction to teach in fundamentally different ways than most teachers traditionally teach math. New approaches to instruction include the constant facilitation and assessment of student learning as opposed to providing direct instruction, and allowing students to struggle to develop their own conceptual understandings of mathematics.
Teachers exhibit high levels of buy-in to the initiatives	Teacher buy-in to instructional and curricular initiatives is central to the success of any new reform. Teachers need to believe that the initiative itself and its supporting structures will provide them with the tools to help their students achieve at higher levels.
Teachers know how to use the tools	**LDC:** Successful use of the LDC Framework requires a strong understanding of how to develop and use the Framework, including mini-tasks and the instructional ladder. **MDC:** Successful use of the Formative Assessment Lessons requires a strong understanding of how to place the Lessons into larger math units and discern and respond to students' mathematical misconceptions.

Figure 3. Indicators of Robust Implementation: Classroom Changes

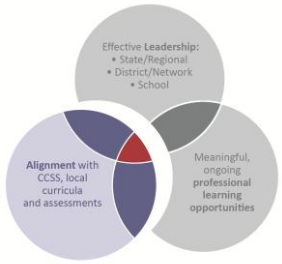
Robust Implementation Indicator	Definition
	Once teachers know how to build and use the tools, they need to execute new pedagogical methods in ways that change instructional practice.
	Students must be responsive to, and engaged by, the new instructional practices in order for the initiative to achieve its goal of improved student learning.
	Teachers need to perceive improvement in student learning as a result of tool use.

Conditions for Scale Up and Sustainability

The Conditions used as the basis for the Theory of Action are drawn from RFA's first year research and the literature on successful scale-up and sustainability initiatives.[1] The three overlapping Conditions in the Theory of Action represent the web of organizational, policy, and professional learning supports necessary for implementing, sustaining, and growing the use of the tools. These conditions were first described in RFA's 2011 reports on tool implementation, and have been revised to include the broader array of leadership necessary for more intensive initiative scale-up.[2] The three Conditions discussed in this year's reports include the following:

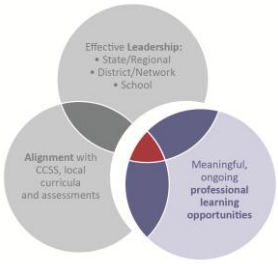
[1] See Bodilly, Glennan, Kerr, & Galegher (2004); Cobb, McClain, Lamberg, & Dean (2003); Coburn (2003); and Datnow, Hubbard & Mehan (2002).

[2] The September 2011 RFA reports entitled *Establishing a Strong Foundation* (LDC and MDC), included four conditions: 1) robust district, regional, school network leadership, 2) strong school leadership, 3) meaningful professional learning opportunities and 4) alignment with the CCSS, curricula and assessment.



Alignment: In order for the reform to be successful, it needs to be in alignment with other policies and initiatives taking place in the state, districts and schools where the reform is being implemented. If initiatives and policies are at cross-purposes, it becomes difficult to progress in any one direction. Because the LDC and MDC tools were designed to align with the Common Core State Standards (CCSS), alignment with these standards, as well as with other local curricula, and state and local assessments, is important to successful implementation and scale-up of the tools.

Effective Leadership: Effective leaders at all levels, including the state, region, district/network and school, need to champion the initiative, provide needed resources and training, and help teachers understand how it fits into an overall plan for educational improvement.



Professional Learning Opportunities: Teachers and leaders need meaningful and ongoing professional development and technical assistance to understand the purpose of the tools, how to implement them in the classroom, and refine their practice as they move forward. Along with formal professional development sessions, this construct also includes more informal work between colleagues in the school setting on a regular basis.

Intermediate Outcomes

When robust implementation of the tools occurs, we would expect to see two major, measurable outcomes emerge prior to the ultimate goal of graduating students who are college and career ready. These intermediate outcomes are:

Broad and Deep Instructional Change. As described above, robust implementation includes changes in both teacher beliefs and knowledge, and changes in the classroom. As these changes take hold and deepen, teachers will exhibit significant changes in their pedagogy that will extend beyond the confines of the initiative, and into their general classroom practices.

Increased Student Learning. Effective use of the instructional tools aligned to the CCSS will result in improvement in student learning that can be documented in a variety of ways, including traditional standardized student assessments, as well as reviews of student work by disinterested third-party researchers.

Long Term Impact: College and Career Readiness

As students progress through schools that effectively utilize the LDC and MDC tools, their learning will become increasingly aligned with the Common Core State Standards. As a result, they will graduate from high school fully ready for college and career.

National Perspective and a closer look at RFA's study sites

During Year Two, RFA examined both the implementation of the tools and how their use had been scaled-up across sites. Indeed, the number of teachers and schools using the tools has expanded across the country.[3] Figure 4 and 5 below display the states in which teachers have been trained in the LDC and MDC tools over the past two years, and provide an indication of the approximate number of teachers receiving professional development in each state.[4]

Figure 4. LDC Tools

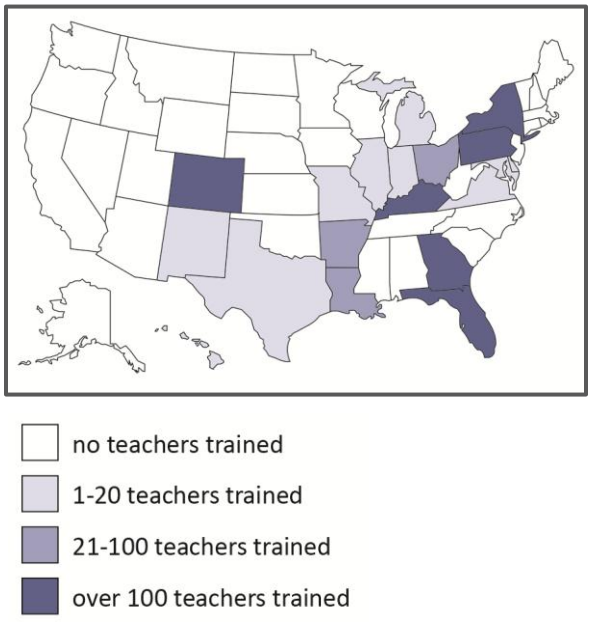
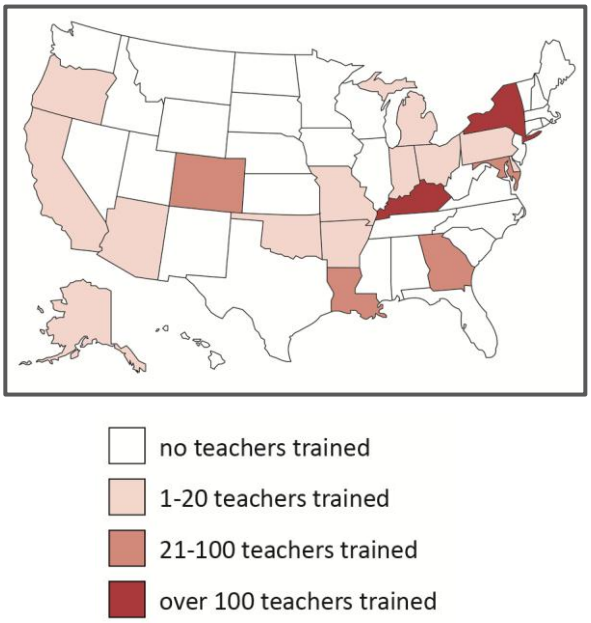


Figure 5. MDC Tools



During the 2011-2012 school year, RFA examined a subset of these states and specific districts and networks implementing the tools to understand how implementation and scale-up varied across different types of settings (e.g., location, size, implementation and scale-up patterns). In consultation with the Gates Foundation, the tool developers and the professional development providers, we carefully chose four LDC and four MDC study sites to conduct both the quantitative and qualitative research in Year Two. We decided to continue the research in six Year One study sites in order to examine implementation and scale-up over time, and included two new study sites in Year Two – one for LDC and one for MDC (New Visions and Jefferson County, respectively).

[3] LDC and MDC trainings vary across states, districts and schools. However, this data presents a national picture of the scope of training in the initiatives.
[4] States that have opted out of the initiative in Year Two, but have been trained in Year One are not included in the map.

The four figures below depict the change in number of teachers and schools involved from Year One and Year Two across LDC and MDC study sites. In the following figures, the key "2010-2011" includes all teachers and schools involved in Year One of the LDC/MDC initiative, and the key "2011-2012" includes all (both new and experienced) teachers and schools involved in the initiative in Year Two.

Figure 6. LDC teacher scale-up in RFA research sites

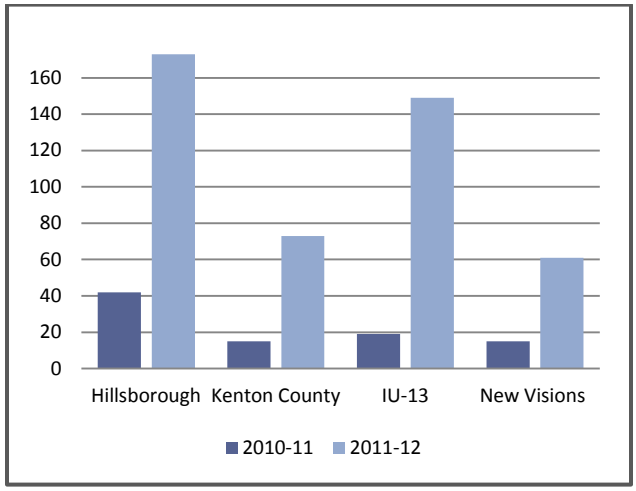


Figure 7. MDC teacher scale-up in RFA research sites

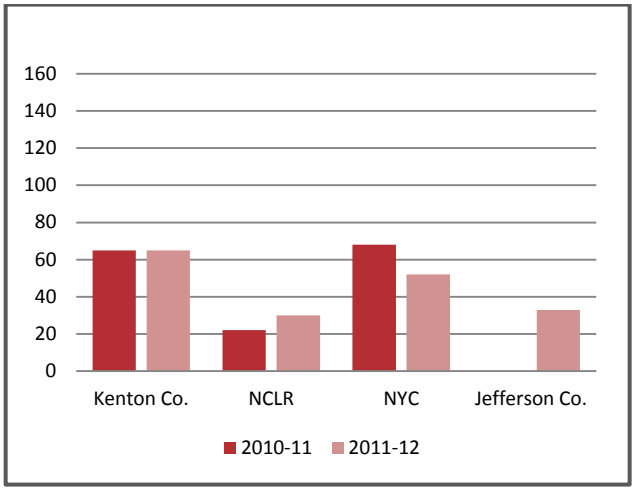


Figure 8. LDC school scale-up in RFA research sites

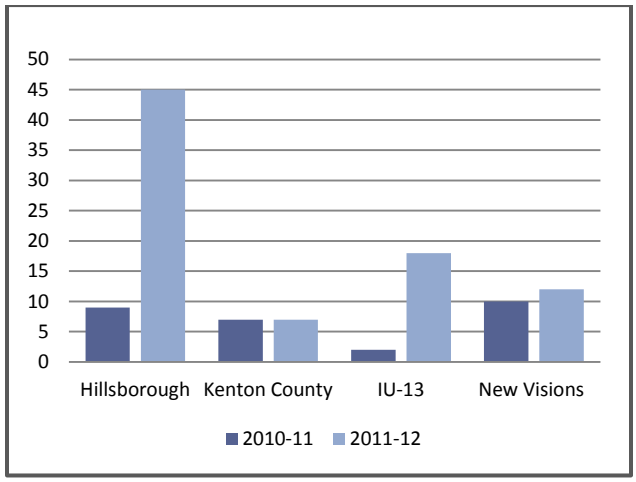
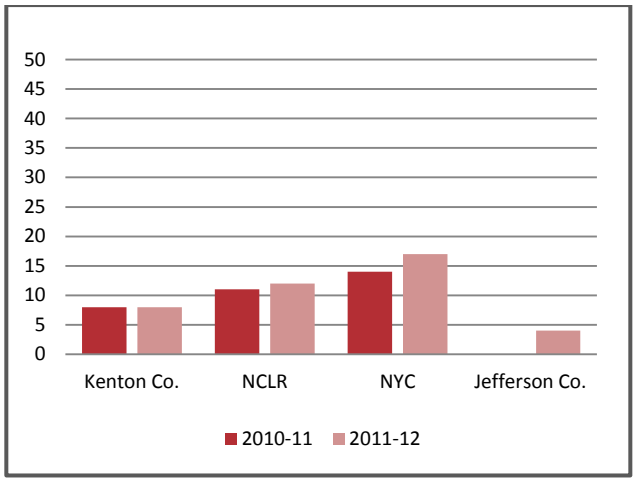


Figure 9. MDC school scale-up in RFA research sites



Overall, the number of teachers and schools involved in the LDC and MDC initiative increased from Year One to Year Two across most of the RFA study sites. However, it is important to note that each site scaled-up the use of the tool in different ways; some sites added more schools and/or districts, whereas others increased the number of teachers involved in the initiative while keeping the number of schools constant. The increase in number of LDC teachers across RFA's study sites is particularly noteworthy. Increases in the number of schools and teachers involved in MDC in Year Two study sites was not as robust for a number of reasons: in Kenton County, the MDC initiative was already scaled-up during the 2010-11 school year, and one of the other MDC study sites (Jefferson County) was in its first year of implementation.

Research Methodology

RFA used both quantitative and qualitative research methods to inform our analysis:

- **Quantitative research activities** include administering and analyzing four different surveys of LDC teachers, MDC teachers, principals, and district leaders.
- **Qualitative research activities** include interviewing teachers, principals, district and state leaders, professional development providers and tool developers involved in LDC and/or MDC, as well as classroom and professional development observations.

Surveys were administered to teachers and school and district administrators to depict a comprehensive picture of the LDC/MDC implementation landscape in RFA's Year Two study sites. All 459 LDC teachers involved in our four LDC study sites (17% of all LDC teachers trained in 2011-12 school year) and all 180 MDC teachers involved in our four MDC study sites (12% of all MDC teachers trained in 2011-12 school year) were administered a survey. Additionally, 114 principals and 122 district leaders received a survey that focused on leadership, capacity, professional development, and scale. Response rates for the LDC and MDC teacher surveys were 53% and 54% respectively. Response rates for the school and district administrator surveys were 57% and 71%, respectively.. (Details on survey methodology are provided in the Technical Appendix A.)

Further, a subsample of 120 teachers, 26 school administrators, and 35 district/state leaders were interviewed either in person or via phone. Figure 10 summarizes RFA's Research Activities from both years.

Figure 10. Research activities during Year One (2010-2011) and Year Two (2012-2012)

Level of Data Collection	Research Conducted: Year One	Research Conducted: Year Two
Tool developers (LDC and MDC)	5 interviews	6 interviews
Professional development providers	2 interviews	4 interviews
Professional development observations	15 observations	9 observations
State-level policymakers & partners	5 interviews	15 interviews
District/regional & network leadership	15 interviews	20 interviews
School administration	29 interviews	26 interviews
Teachers	121 Interviews and 37 observations	120 Interviews and 65 observations

Surveys **2010-2011:(9 Districts)** **2011-2012: (39 Districts)**	Teachers: 179 (Response rates: LDC: 71%; MDC 53%)	Teachers: 336 (Response rates: LDC: 53%; MDC: 54%) Principals: 65 (Response rate: 57%) District Admin: 75 (Response rate: 71%)

What's Next?

The remaining three briefs take a closer look at the LDC and MDC study sites to identify the conditions and contexts in which the use of the tools can be continuously sustained and scaled up in the future. Specifically:

- **Brief Two: Robust Implementation of LDC: Teacher Perceptions of Tool Use and Outcomes** discusses the ways in which the LDC framework has been implemented during Year Two and examines the indicators of robust implementation related to teacher beliefs and knowledge and classroom changes.
- **Brief Three: Robust Implementation of MDC: Teacher Perceptions of Tool Use and Outcomes** discusses the ways in which the MDC initiative has been implemented during Year Two and examines the indicators of robust implementation related to teacher beliefs and knowledge and classroom changes.
- **Brief Four: Conditions for Scale and Sustainability** defines scale-up and sustainability, discusses the conditions needed for successful scale-up of the tools, and highlights the lessons learned from the research on scale-up strategies to provide suggestions for the implementation of the tools in new and continuing sites.

We look forward to continuing our analysis of the implementation and impacts of the LDC and MDC initiatives. Future work will focus on scale-up and sustainability, with the aim of providing key stakeholders with the information necessary to make decisions that best support educators in guiding students in their preparation for college and careers beyond high school. To address the heightened focus on scale-up and sustainability, our upcoming research activities will expand upon activities from this year (i.e., surveys, interviews, and observations) by reaching out to a greater number of participants. Also, we will conduct case studies to provide detailed descriptions of tool implementation and scale –up in four study sites. Finally, RFA will continue to work with CRESST to support their investigation of the relationship between the LDC and MDC initiatives and student outcomes and to develop systems to be used by teachers and administrators in observing and evaluating LDC and MDC tool implementation.

Works Cited

Birman, B. F., Desimone, L., Porter, A.C., & Garet, M.S. (2000). Designing professional development that works. *Educational Leadership*, 57 (8), 28-33.

Black, P., Harrison, C., Lee, C., Marshall, B., & William, D. (2004). Working inside the black box: Assessment for learning in the classroom. *Phi Delta Kappan,* 86 (1), 8-21.

Bodilly, S., Glennan, T., Kerr, K., and Galegher, J. (2004). "Introduction: Framing the Problem." In Glennan, T., Bodilly, S., Galagher, J., & Kerr, K. (Eds.) Expanding the Reach of Education Reform. Santa Monica: RAND.

City, E.A., Elmore, R.F., Fiarman, S.E. & Teitel, L. (2010). The instructional core. *Instructional rounds in education: A network approach to improving teaching and learning*. Cambridge, MA: Harvard Education Press.

Clarke, B. & Shinn, M.R. (2004). A preliminary investigation into the identification and development of early mathematics curriculum-based measurement. *School Psychology Review,* 33, 234-248.Cobb, P., McClain. K., Lamberg, T., & Dean, C. (2003). "Situating Teachers' Instructional Practices in the Institutional Setting of the School and District." *Educational Researcher*, Vol. 23, No. 6, pp. 13-24.

Coburn, C. (2003). "Rethinking Scale: Moving Beyond Numbers to Deep and Lasting Change." *Educational Researcher,* Vol. 23, No. 6, pp. 3-12.

Cohen, D.K. & Hill, H. (1997). *Teaching and learning mathematics in California*. Paper presented at the annual meeting of the American Educational Research Association, Chicago.Datnow, Hubbard & Mehan (2002). Extending Educational Reform: From One School to Many. New York: RoutledgeFalmer, pp. 117-145.

Fuchs, L.S. (2004). The past, present, and future of curriculum-based measurement research. *School Psychology Review,* 33, 188-192.

Hiebert, J. & Carpenter, T.P. (1992). *Learning and teaching with understanding*. In D.A. Grouws (Ed.), Handbook of research on mathematics teaching and learning. New York: Macmillan, 65-97.

Hiebert, J. & Wearne, D. (1993). Instructional tasks, classroom discourse, and students' learning in second-grade arithmetic. *American Educational Research Journal,* 30(2), 393-425.

Jones, B., Valdez, G., Nowakowski, J., & Rasmussen, C. (1994). *Designing learning and technology for educational reform*. Oak Brook, IL: North Central Regional Educational Laboratory.

Kennedy, M. (1998). *Form and substance in in-service teacher education*. Madison WI: National Institute for Science Education.

Tunstall, P. (1996). Teacher feedback to young children in formative assessment: A typology. *British Educational Research Journal*, 22, 398-395.