

By Janice Bradley, Linda Munger, and Shirley Hord

s they approached the principal's office in their school, teacher leaders
Jose and Judith discussed their actions regarding their students' lack of understanding fractions. They shared with Cesar, the district mathematics coordinator, how the 3rd-grade professional learning community had been working to articulate a data-based outcome for their team's learning that will lead to students' successful work with fractions.

"Thank you for meeting with us today, Stephanie," Jose greeted the principal. "We thought it would be helpful if we all worked together to gain clarity on our next steps."

"Thanks very much, Jose, for providing me with the details of your discussions and efforts," the principal said.

"Your professional learning community is doing an excellent job using multiple data sources to explore your students' low performance and identify their lack of understanding of fractions as the problem. Now I understand that you are trying to gain clarity about setting the outcome(s) for your own learning that will lead to more effective instruction for your students."

Jose and Judith nodded and said, "That's it, Stephanie. We have come to you and Cesar for support in our next efforts."

BEGINNING AT THE END

In the article "Focus first on outcomes," published in the August 2015 issue of *JSD* (Bradley, Munger, & Hord, 2015), the intended adult learning outcome was to gain

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an understanding of identifying outcomes first, not activities, and to create awareness of a logic model as a tool for planning change. Although typically educators start by identifying resources and activities first, a logic model asks educators to think backward by focusing first on outcomes and requires these questions to be answered in sequence:

- 1. What is the problem we intend to impact?
- 2. What will it look like when we achieve the desired outcome?
- 3. What teacher behaviors need to change for that outcome to be achieved?
- 4. What knowledge or skills do teachers need before their behaviors will change?
- 5. What activities do teachers need to engage in for their professional learning?
- 6. What resources will be required to achieve the desired outcome? (McCawley, n.d.)

In the opening scenario in that article, the 3rd-grade teachers in the professional learning community want to increase

This article is a follow-up to "Focus first on outcomes" (Bradley, Munger, & Hord, 2015), published in the August 2015 issue of *JSD*. That article set the stage by creating awareness of the need and purpose for thinking first about outcomes, not activities, when starting a change project. This article is designed to build knowledge, skills, and dispositions for how to consider outcomes first in order to see change.

their knowledge and skills in how to teach students to develop understanding of fractions (educator learning outcome). Some of the activities used to accomplish this learning outcome were to review the research on how students develop understanding of fractions and interact with math specialists to help them. The table on p. 50 is a logic model the 3rd-grade team developed and shared with the principal and district math coordinator to solicit their support for next steps.

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LOGIC MODEL AS A ROAD MAP TO REACH INTENDED GOAL

What do you want to accomplish?

Goal statement (intended results for students): By end of school year, 3rd-grade students will increase their understanding of fractions and be able to precisely articulate their understanding of fractions as a result of teachers learning how to effectively teach fractions.

RESOURCES Time, materials, people	PROCESSES/ ACTIVITIES Professional learning	EDUCATOR LEARNING OUTCOMES Changes in educator knowledge, skills, and dispositions	EDUCATOR PRACTICE OUTCOMES Changes in educator practice	INTENDED RESULTS FOR STUDENTS Changes in student results
Professional learning community sessions. Math specialists (school, district).	Meet in professional learning community sessions. Study, analyze, and interpret student data. Review the research on how to teach students to understand fractions. Interact with math specialists.	 Increased knowledge and skills in teaching students how to develop understanding of fractions. Recognition of the value of teaching fractions. 	 Implementation of effective teaching strategies to increase students' understanding of fractions. Demonstration of enhanced content knowledge when teaching fractions. 	 Evidence showing students' increased understanding of fractions. Increase in the number of students scoring proficient or higher on fractions.

Sources: Killion (2008), Love, Stiles, Mundry, & DiRanna (2008).

MAKING A CHANGE

Hord (2016) states that "any change effort to improve practice derives from making a change from some feature or factor that is not producing desired results to one that holds the potential for doing so; and, to make this change, learning is the imperative — learning what the change is and how to use it.... [L]earning is the pathway" (p. 51). Hord and Roussin (2013) identified six implementation strategies for a change effort:

- 1. Develop and communicate a shared vision.
- 2. Plan and provide resources.
- 3. Invest in professional learning.
- 4. Check progress.
- 5. Continue to give support.
- 6. Create an atmosphere and context for change (p. 13).

6 STRATEGIES FOR A CHANGE

Based on the opening scenario, teacher leaders Jose and Judith solicited the support of the principal and district math coordinator to collaboratively engage in learning the six strategies and how to use them. This would ensure teachers gain the necessary knowledge, skills, practices, and dispositions (educator performance outcome) to increase students' understanding of fractions (student performance outcome). The table on p. 51 provides a tool with definitions, questions, and examples of

An IC map provides a shared vision of the most ideal way of implementing the components of a change.

evidence for each of the six strategies to guide successful implementation to reach the intended outcomes and results identified in the logic model.

1. Develop and communicate a shared vision.

An Innovation Configuration (IC) map describes the major components of a change when it is in use. Hord (2016) states, "These pictures 'show' the outcome in operation and show the action (who is doing what) when the outcome is achieved" (p. 54).

An IC map provides a shared vision of the most ideal way of implementing the components of a change. The IC map is developed with the ideal variation of each component placed on the left end of a continuum and decreasing levels of variations progressing to the right (Learning Forward, 2012). The table on p. 52 shows an IC map that the 3rd-grade teachers might use for increasing their effectiveness in teaching students an understanding of fractions.

Strategy 1 in practice: 3rd-grade teacher leaders, with sup-

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6 STRATEGIES FOR A CHANGE

6 STRATEGIES Strategy	Definition	Questions	Evidence
Develop and communicate a shared vision.	A shared mental image of the future as a result of successful implementation of the change.	 What do we want the change to look like once it has been fully implemented? How do we ensure that the vision is a shared vision? 	Teacher leaders and math coordinator facilitated a process where teachers identified key components and created a shared image by drafting an Innovation Configurations (IC) map describing ideal classroom practices of the vision.
Plan and provide resources.	The road map for change and the time, tools, and staff needed to implement the change.	 What time, tools, and staff will be needed for ongoing planning, professional learning, and collaboration? How will we know that our plan has been implemented and is having the desired impact? 	Time was scheduled for regular weekly collaboration. Teacher leaders and math specialists conducted observations of teachers to pilot the IC map and make necessary adjustments. The principal and teacher leaders used the IC map to plan and identify material and human resources needed for professional learning.
3 Invest in professional learning.	Provides implementers with what they need to know and be able to do.	What professional learning does the staff need? How do we design and provide professional learning to meet educator needs throughout the process of implementation?	Teachers engaged in two learning designs supporting them to change their knowledge, skills, and dispositions, then implement the change in their practice.
4 Check progress.	Provides strategies to identify emerging needs of teachers, clarify questions, and solve small problems, and provides evidence of teacher implementation and impact on student learning.	What types of data do we need? • Evidence of implementation. • Evidence of impact.	Teachers identified changes to their practice and asked teams to look for transfer of learning during walk-throughs. Teachers engaged in reflection of changes in their practices and compared students' pre- and post test results.
5 Continue to give support.	Ongoing strategic and targeted responses to support implementation based on identified needs.	What forms of assistance will maintain the momentum of implementation? How can we incorporate what we learn from monitoring to make necessary adjustments?	 Walk-through teams provided feedback to individual teachers and to the 3rd-grade team. Math coordinator attended professional learning communities as teachers planned their fraction unit. The math coach worked with teachers individually as well as facilitated peer coaching for professional learning communities.
6 Create an atmosphere and context for change.	Nurturing a culture and climate in the organization to support implementation of the change.	 How do we create a sense of urgency about the need for implementation of the change? How do we build a sense of mutual responsibility and accountability for implementation? 	Teachers made a commitment to engage in their learning first by being willing to be risk-takers, reflecting on what is or isn't working, and using information from ongoing assessments to make necessary changes. Team commitments included being flexible, trustworthy, mutually respectful, and willing to try new things.

Source: Adapted from Hord & Roussin, 2013, pp. 23-24.

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TEACHED'S IC MADEOL	D DEVELODING STUDENTS' I	INDERSTANDING OF FRACTIONS
TEACHER SIC MAP FOI	K DEVELOPING STUDENTS L	INDERSTANDING OF FRACTIONS

THE TEACHER				
Component 1: Selects content objectives.				
1	2	3	4	
Selects content objectives and uses a sequence to teach students to gain mastery of core learning standards for understanding fractions.	Chooses content objectives aligned with core learning standards for understanding fractions.	Identifies objectives from district math curriculum for teaching fractions.	Refers to textbook for objectives for teaching fractions.	
Component 2: Engages students in learning.				
Engages students in differentiated lessons according to their level of knowledge of fractions based on assessments.	Engages students in a variety of differentiated lessons.	Uses a variety of lesson activities to engage students both individually and in a group.	Follows traditional methods of teaching fractions.	
Component 3: Assesses progress.				
Uses a variety of formative assessments daily (e.g. teacher observations, group activities, class discussions), and uses district assessments for evidence of mastery.	Relies on classroom observation of students' work and on teacher-constructed tests.	Employs no regular or systematic assessments.		

port of math coordinator, facilitated the development of an IC map through a process resulting in all professional learning community members visualizing what the change will look like as implementation progresses.

2. Plan and provide resources.

Resources (material, time, personnel, dollars) are allocated, and reallocated, to ensure that the activities maximize teacher learning and changes in practices to impact student achievement

Strategy 2 in practice: Teacher leaders gathered essential material and human resources (state standards, math specialists) to assist teachers in achieving their learning outcomes. The 3rd-grade team scheduled collaborative time to engage in ongoing learning to focus on the components of the IC map to promote effective teaching of students' understanding of fractions.

3. Invest in professional learning.

Hord and Roussin (2013) say that change efforts require the acquisition of new content knowledge and skills in instructional techniques and strategies. Effective professional learning provides teachers opportunities to learn together, practice new instructional techniques and strategies, observe model lessons, and receive coaching and feedback on the use of new practices.

When choosing learning designs for professional learning, teachers must consider first the intended outcome based on analysis of student and teacher learning needs. According to Drago-Severson, Roy, and Von Frank (2015), common features of multiple learning designs include "active engagement, modeling, reflection, metacognition, application, feedback, ongoing support, and formative and summative assessment that support change in knowledge, skills, dispositions, and practice" (pp. xiii-xiv).

Joyce and Showers (2002) found that, when working with teams engaged in coaching, three collective agreements were helpful in governing their collaborative work:

- "Commitment to practice/use whatever change the faculty has decided to implement.
- Assistance and support of each other in the change process, including shared planning of instructional objectives and development of materials and lessons.
- Collection of data, both on the implementation of their planned change and on student effects relevant to the school's identified target for student growth" (p. 88).

Strategy 3 in practice: The teachers chose two learning designs to gain content knowledge for teaching fractions and skills in instructional techniques and strategies to develop students' understanding of fractions. The first was learning collaboratively and applying the components of the IC map in the classroom (see table above). The second was engagement in a learning design called Collaborative Planning, Teaching, and Assessing to sustain and support implementation of effective instructional

MONITORING TOOLS ALIGNED WITH EDUCATOR OUTCOMES

Teacher learning outcomes Changes in educator knowledge, skills, and dispositions	Teacher practice outcomes Changes in educator practice
Increase of teachers' knowledge and skills in developing students' understanding of fractions. Recognition of the value of teaching fractions.	Implementation of effective teaching strategies to increase students' understanding of fractions. Demonstration of enhanced content knowledge when teaching fractions.
 Pre- and post teacher content assessment. Teacher logs/journals. Teacher surveys. Teacher self-reflections or self-assessments. 	 Classroom observations with protocols or checklists. Classroom walk-throughs, focus on teachers' instruction of the "new." Teacher/student surveys. Teacher/student interviews. Demonstration lessons. IC maps.

Source: Love, Stiles, Mundry, & DiRanna (2008).

content and skills. During the three-hour learning cycle, teachers co-design a lesson in the first hour, teach the lesson in the classroom in the second hour, and assess student understanding of fractions using new practices in the third hour (Bradley, 2015, p. 44).

4. Check progress.

Affholter (1994) states that an outcomes monitoring system includes "what to measure, how many measures to use, how (and how often) to measure and report, and how to present the information" (p. 105). Data collection needs to be a routine part of the change effort to ensure progress toward the desired educator outcomes. The chart above shows some useful monitoring tools that are aligned with identified teacher outcomes (identified in the logic model on p. 50).

Strategy 4 in practice: The principal, math specialists, and teacher leaders conducted observations using the IC map to identify the degree of transfer of teachers' new learning to the classrooms. The teachers used the IC map as a self-assessment. During professional learning community time, the 3rd-grade team used a scoring sheet to record individual scores from the IC map to determine support needed to strengthen implementation of the components of effective teaching of students' understanding of fractions.

5. Continue to give support.

Giving support to teachers implementing the change needs to be coupled with information gathered from multiple sources of data during regular checking of progress. Based on Joyce and Showers' research (2002), coaching is an imperative component to ensure transfer of learning to the classroom.

Strategy 5 in practice: The math coordinator, principal, and teacher leaders provided ongoing support to all teachers in multiple ways: with regular and frequent personal visits to each teacher to demonstrate their availability to provide support and assistance; by email; during professional learning community meetings; and via feedback following walk-throughs. The math coordinator recorded the scheduled times that fractions would be taught in the classrooms. The math coach worked with teachers individually as well as with the whole team.

6. Create an atmosphere and context for change.

Change will flourish in an environment where everyone is committed to learning, starting with educators first — developing their necessary knowledge, skills, practices, and dispositions — and followed by students engaged in quality learning experiences by more effective teachers. This will require a school context, nurtured by school leaders, where educators consistently reflect on what is or is not working and use the information to assess the effectiveness in their learning and changes in practices to achieve the intended results for students.

Strategy 6 in practice: Teachers made a commitment to engage in their own learning about effective teaching of fractions, become risk-takers in trying new practices and being observed, and make changes based on constructive feedback from coaching.

FOCUS ON OUTCOMES FIRST

The 3rd-grade teachers' investment in focusing on outcomes first made significant and substantial differences in their efforts to achieve more effective instructional practices.

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of improved practice but also is a valuable end-of-course artifact as I consider revisions to the course.

After taking several continuing education courses, Dorothy called to say, "Thank you for talking me off the ledge when I started this journey. I am much more confident not only about the concepts from the courses but also with using technology within my own learning and also with children to improve their learning."

I replied, "Thank you, Dorothy, for being willing to step out of your comfort zone and share your knowledge and experience with me and with your peers. Professional development is about growing in professional practice together to improve student achievement, and you made a significant contribution to that process."

If done well, providing continuing education in an online format to adult professionals like Dorothy has the potential to not only transform educational practice but also increase access to meaningful professional learning that is enhanced by relevant technology tools.

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I use forum discussions and online journaling for students to post questions or challenges regarding practice and course content and receive timely feedback and ideas from peers and/or facilitators.

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Activities vs. outcomes

Continued from p. 53

They saw changes in their knowledge and skills and made changes to their practice, which resulted in increased student achievement as measured by growth on pre- and post tests.

Using a logic model as a road map to reach intended results, and collaboratively engaging in learning the six strategies for change, the 3rd-grade teachers were able to reach the desired goal by thinking about outcomes, not activities, first.

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