



LEARNING THAT'S MADE TO MEASURE

EMBEDDED ASSESSMENTS
GAUGE EDUCATORS'
GROWTH AND IMPACT

BY GISELLE O. MARTIN-KNIEP AND REBECCA SHUBERT

Thirty years ago, I served as a program evaluator for the California International Studies Project, a consortium led by Stanford University that included world affairs organizations, colleges, universities, and county education offices.

The project provided K-12 educators with access to some of the best international studies resources and professional learning programs. Offerings included 80 to 100 program hours during the year, three-week summer institutes, study tours abroad, and fellowships.

One of my responsibilities was to evaluate the impact of these programs

— mostly on teachers, but sometimes on students. Many of the programs aimed at improving cross-cultural awareness, perspective taking, and conflict resolution.

Despite a thorough search of assessment instruments, I was limited by tools that relied on perceptual and attitudinal data rather than assess whether adults or students could

understand that others can think differently, recognize the value of an alternative perspective, or assume a perspective other than their own.

After experimenting with alternative measures with my team and other colleagues, I learned that the best way to assess such outcomes was to provide learners with experiences that elicited such outcomes, such as simulations, role-plays, and other performance tasks. As I designed several of these assessments, I recognized that assessment and learning could be fused into a single experience — that asking learners to “experience” someone else’s opportunities, predicaments, and constraints could lead them to learn what it feels like to live a different reality but also activate their perspective-taking ability.

I saw how teachers and students would enter an assessment experience knowing less than when they exited it. I discovered the value of authenticity and the constructs of assessment *for* learning and assessment *as* learning. I recognized then, as I do now, that assessment is the most powerful lever for learning and that it can be a means for assessing dispositional and other hard-to-measure outcomes.

So how does this relate to the question: What do practitioners need to know and be able to do to understand



the impact of professional learning on their own practices and on student learning? For over two decades, my colleagues and I have worked for Learner-Centered Initiatives, a consulting organization based in New York, promoting best practices in curriculum, development, assessment, and leadership. A significant portion of our work is directed toward helping educators attend to and assess students’ ability to communicate, collaborate, think deeply, and apply and reflect on what they know and can do.

We have helped teachers design authentic performance assessments in which students engage in problems or issues for a real purpose and audience who can benefit from their work; create student-centered portfolios that enable students to demonstrate both their growth and achievement as learners; and design rubrics, checklists, and other tools that result in hard-to-measure outcomes, such as collaboration, open-mindedness, flexibility, and bias recognition.

Inspired by our understanding of assessment for and as learning, we design professional learning with embedded assessment opportunities

that enable participants to assess their growth and attainment of the very outcomes they are acquiring as they are learning and, in some cases, determine the impact of their learning on others.

In this article, I draw on a professional learning experience with about 50 teachers and administrators from 10 school districts in New York, New Jersey, and Connecticut over four full-day sessions between December 2015 and February 2016. These educators sought to learn about and assess critical thinking, metacognition, and problem solving. They worked collaboratively in small teams, first to uncover their understandings of these outcomes, then to determine what to assess and what metrics to use and, finally, to engage in peer reviews as they completed different drafts of their work.

Such collaborative work enabled them to draft and, in many cases, field-test 22 assessment tools aimed at evaluating or promoting these outcomes, including learning progressions, checklists, and rubrics. This professional learning experience illustrates how program- or curriculum-embedded assessment can help facilitators and learners document their learning while revealing the inherent complexities of assessing hard-to-measure learning outcomes.

This professional learning program

provided us with a ripe opportunity to assess participants' learning, deepen participants' awareness of their own growth as learners, and help them and us gather some evidence of the impact of their learning and work on teachers (for administrators) and on students (for teachers).

THE IMPORTANCE OF KNOWING WHAT WE KNOW AND DON'T KNOW

Being able to assess our impact or the impact of what we experience as learners begins with a clear sense of what we know and don't know. All participants attending the program worked in districts that had made an explicit commitment to critical thinking, problem solving, and metacognition, as evidenced in their mission or vision statement, district goals, and their participation in the Tristate Consortium.

This consortium includes more than 40 school districts that have made a commitment to using performance assessments that enable students to demonstrate their capacity to transfer and apply knowledge and promoting student metacognition in systemic and ongoing ways. Thus, it was easy to assume that there was a high level of readiness and understanding of these outcomes.

We launched the design work by reviewing and discussing different definitions and conceptualizations of each of the outcomes, sharing individuals' assumptions about these conceptualizations, and exploring how these outcomes manifest themselves in teachers' and students' discourse, behavior, and work, using videos and assessment examples.

To track changes in participants' understandings of the outcomes as they engaged in these learning experiences, we asked them to complete a concept map of each outcome before and after the first

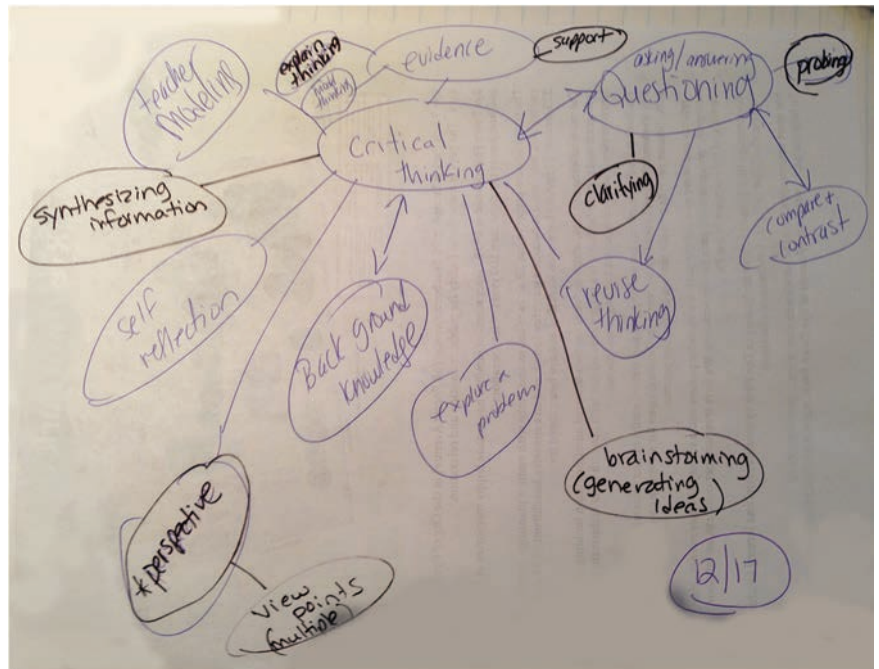


Photo by REBECCA SHUBERT

Having access to pre- and post-assessment experiences, such as this concept map, helped participants assess their own growth and motivated them to learn more about the outcomes.

set of activities. The concept map above illustrates some of these changes that one of the teams experienced. The words in blue were added before the activities, and the words in black were added after the activities.

As can be seen in the map, these individuals came to the program recognizing that thinking entailed multiple components, including skills (e.g. comparing), knowledge, and processes (e.g. questioning and revising), and required instruction. The revised map shows nuanced changes illustrated by the awareness of perspectives and of additional skills and processes.

As they examined the revised maps, participants realized that there was more to thinking than what they understood. In fact, the more they learned about the outcomes, the more they understood their knowledge limitations and what the outcomes entail. As one participant noted, "I have a better understanding of the different dimensions of problem solving. I clearly see how it can be broken down into

subcategories. In the past, I did not view it this way. This clarifies our next steps. ... We have a lot of work ahead."

As they explored these outcomes more in videos and other examples, participants were humbled by the limitations in their instructional repertoire and discovered that helping students acquire and use these outcomes required more and perhaps even different strategies than those they knew. "It turns out we don't do a great job asking students to think about their thinking and that we don't help them know what thinking entails," another participant said.

WHAT PROGRAM-EMBEDDED ASSESSMENTS CAN DO FOR LEARNERS

Having access to pre- and post-assessment experiences, such as the concept maps, helped participants assess their own growth and motivated them to learn more about the outcomes. Their motivation increased even more once participants began to design

specific metrics that assigned levels of development or quality.

Having the opportunity to design school and classroom assessment tools for their own use gave them an authentic purpose for their learning and deepened their understanding of these outcomes even more. As they drafted tools, participants discovered the importance of clear and precise language for communicating what to expect from students and how this differs from relying on evaluative and relative terms.

“We realized the importance of describing behaviors rather than relying on evaluative words,” one participant said. “We also realized how common it is to use quantitative words in a rubric. Now, we try to focus on using what is visible.”

As the design work progressed, participants were eager to bring their work to their students and teachers. Some of the tools, like the example at right, unpacked the behaviors associated with problem-solving indicators and the prompts that could elicit such indicators. This district rubric, with accompanying prompts for teachers, aims to help teachers develop students as problem solvers.

Using these tools deepened participants’ attention to and understanding of these outcomes, whether they used the tools with students, teachers, or across the system. As a 3rd-grade teacher said, “Using this tool with my 3rd graders helped me stay super focused on what it is I’m looking for as evidence of them engaging in problem solving.”

An elementary school principal said, “We see this as a tool that can be used K-12. The tool can be used at all grade levels because it can be flexibly adapted to differences in the complexity of subject-area content as well as the time frame for evolution from stage 1 to stage 5 in the progression. Younger

PROBLEM-SOLVING RUBRIC				
Dimensions	Level 1	Level 2	Level 3	Level 4
Define the key contextual components of the problem.	Expresses general interest in a problem.	Outlines what the problem is.	Describes the context of the problem (who, what, why, where, when, how).	Articulates an understanding of any real-world issue that may be a result of the problem and its context.
<ul style="list-style-type: none"> • Wrestles with the discomfort of inconsistencies, contradictions, and multiple perspectives in identifying the cause(s) of the problem. • Identifies and/or asks questions that contribute to defining the components or nature of the problem. • Identifies relevant information. 				
<p>Question: Is the problem and its context understood? Students can be encouraged to:</p> <ul style="list-style-type: none"> • Restate the problem in their own words. • Think about the problem. • Talk about the problem. • Consider the information that is needed to understand the problem. • Describe the context of the problem. • List the conditions that surround the problem. • Capture all related relevant information. • Represent the problem in more than one way. • Describe related known problems. • Explain the real-world issue that is a result of the problem and its context. • Monitor their thinking. 				
<p>Source: Developed by CarolAnn Smythe, North Shore School District, Long Island, New York. Used with permission.</p>				

students may move from stage 1 to stage 5 after the course of a unit or school year whereas older students may move through stages more quickly.”

The tools also provided participants with descriptive language to name and assess what was important for them to assess. They also helped us determine how well they were able to describe the different outcomes. The chart on p. 42 contains excerpts of a critical thinking rubric with an example of possible student responses for each level, which serve as anchors for the rubric that illustrates this explicitness.

In some cases, the tools became a learning opportunity for students.

“We have learned that the rubric promotes a metacognitive response in students who might not otherwise have recognized the stages of critical thinking and how it engages not only prior knowledge but other perspectives,” one participant said. “Most importantly, it suggests to students that critical thinking is not a finite process; rather, conclusions can lead to new problems or understandings.”

As teachers and administrators used them to teach others, they uncovered more nuanced behaviors associated with the outcomes and realized how the tools would need to be refined. As one participant said, “When I piloted

CRITICAL THINKING RUBRIC				
	Novice	Apprentice	Emerging expert	Expert
To what extent does the student prevent his or her own assumptions and biases from inhibiting new understandings?	Relies on own assumptions. <hr/> <i>Syrian refugees should be admitted to the U.S.</i>	Questions assumptions and seeks to make inferences. <hr/> <i>I do not believe that Syrian refugees would pose a threat to homeland security.</i>	Distinguishes assumptions from evidence-based inferences. <hr/> <i>I think Syrian refugees are not a homeland security threat, but I do not understand why.</i>	Suspends judgment of thinking until careful consideration of evidence is examined. <hr/> <i>In order for me to decide whether or not Syrian refugees should be admitted to the U.S., I need to consider arguments from both sides of the debate.</i>
To what extent does the student validate the perspectives of self and others to formulate a stance?	Acknowledges own thinking as truth. <hr/> <i>Syrian refugees should be admitted to the U.S.</i>	Acknowledges presence of other points of view but does not consider them. <hr/> <i>People who would admit Syrian refugees to the U.S. are right.</i>	Recognizes and considers opposing yet valid points of view. <hr/> <i>I believe Syrian refugees do not pose a threat to homeland security, although compelling arguments have been made to the contrary.</i>	Carefully evaluates opposing points of view to revise and/or affirm own thinking. <hr/> <i>One must acknowledge the moral imperatives of providing refuge for persecuted Syrian citizens, but the vulnerabilities in the vetting procedure must be addressed in order to limit real threats to homeland security.</i>

Source: Developed by Christine Cincotta, Michael Mezzo, Lynn Fusco, and Emily Urso.

the tool, I realized students who are amazingly metacognitive might not score very high on the tool. That means the rubric needs work, not them... I need to revise my dimensions to account for different kinds of thinkers.”

They also realized, especially after analyzing student work against the tools and metrics, that the tools sometimes communicated higher expectations than the learning opportunities they provided or that student work did not meet the expected standards.

Some teams adopted language that only reflected the actual work samples they had collected instead of fully articulating behaviors or manifestations that could be evident, but that they did not know how to develop. Such a decision raised questions for us, as professional developers, about how we can scaffold the development of outcomes that we either have not attained ourselves or do not have

sufficient knowledge or experience cultivating.

Administrators and teachers realized that producing these outcomes is not only about teaching students how to problem solve or think, but requires a culture that promotes thinking or problem solving in students and demands contexts in which teachers see themselves as thinkers and problem solvers.

“Learning about the stages of the problem-solving process and the nuances of each stage underscored for me that problem solving can be taught,” a participant said. “We often think of some students as being ‘natural’ problem solvers and the leaders in group tasks. I learned that, as leaders, we have to provide opportunities for teachers to be involved in authentic problem-solving tasks so they can identify what it looks and sounds like so they can support students in the process.”

Our program-embedded assessment experiences enabled me to learn about and from the participants in the program, while they learned about their own learning and impact on others. I realized that assessing difficult-to-measure outcomes requires a rich and elaborate language that attends to the nuances and developmental range of these outcomes, an instructional repertoire that honors their development, and the experiences and opportunities for educators to cultivate and practice these outcomes in themselves and in their practice.

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Giselle O. Martin-Kniep (gisellemk@lcilt.org) is president and **Rebecca Shubert** (beccas@lcilt.org) is research assistant at **Learner-Centered Initiatives in Garden City, New York.** ■