

Learning Progressions: Maps to Personalized Teaching

In Denver and elsewhere, learning progressions offer one tool teachers can use in the formative-assessment process

By Holly Yettick

Denver

Alexandra Overby is sleuthing the selfies she assigned to her Digital Photo 1 class during the first week of school this year at East High School here.

Student A fluently describes the statement he is trying to make with a playful picture depicting himself alongside a vintage car. Student B clearly used the camera on the classroom computer to snap a shot he had not cropped, titled, or resized.

"Not very familiar with using the computer," Overby ventures to guess. "He didn't understand the technical steps—this is a kid I'll watch."

As for Student C, he's a mystery. His sentences are simply structured, and he did not really respond to the guiding questions that Overby assigned, leading the 17-year teaching veteran to hypothesize that he does not have much experience with art. But when she turns to his selfie, it is sophisticated and unique, with slivers of his face floating in a sea of bulldog motifs.

Overby's selfie assignment is her first formative assessment of the year. This means that it is kind of like that moment on a road trip when you pull the car over to figure out where you are: Her goal is to locate each student on a set of districtwide maps tracing educational trajectories through the arts. After all, it is difficult, if not impossible, to know where you need to go if you are not quite certain where you are. Once Overby's formative assessment has pinpointed her students' positions, she can then adjust her instruction accordingly.

Variably called "learning progressions," "concept progressions," and "concept maps," the developmental signposts that Overby and her district colleagues are

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What Are Learning Progressions?

helping to develop provide directions to guide students' progress toward the educational standards, objectives, or goals that educators hope will be their final destination.

"A learning progression to me is a prerequisite for an effective formative assessment because a learning progression is [a series of] building blocks you think kids have to have before they acquire terminal curricular outcomes," said psychometrician W. James Popham, an emeritus professor in the Graduate School of Education and Information Studies at the University of California, Los Angeles.

"If you don't have a learning progression, how do you know when it's time to make a decision to adjust your instruction? If you're doing formative assessment without a learning progression, you're not thinking it through carefully... You're not going to get the most mileage out of it," Popham said.

Assessment 'Sea Change'

The use of learning progressions represents a sea change of sorts for Overby.

"Before, we just knew the end goal of what we wanted kids to do and understand, and we would just pick and choose projects that interested us, that interested the kids," Overby said. "There wasn't always a purposeful focus on why we chose that project, why we chose that skill set. You assumed students didn't know very much and you wanted them to be very competent at the end. There wasn't a lot of assessment in the beginning because you assumed they were missing a lot of skill sets to be successful artists and you were going to get them there, and how you got them there was up to you."

For more than two years, the district's physical education and arts department has been working with the Center for Assessment, Design, Research, and Evaluation, or CADRE, at the University of Colorado at Boulder's school of education to use learning progressions to guide assessment and instruction from kindergarten to grade 12.

History of Learning Progressions

Like most big ideas in education, learning progressions are not new. Australia, the United Kingdom, and other nations have used them for decades. A **2008 Council of Chief State School Officers** helped to popularize learning progressions in this country. Before that, a **landmark 2006**

If standards are the ultimate destination of a particular area of instruction, learning progressions are the detailed driving directions that guide students from where they start to where they need to go.

Learning progressions map the routes students typically follow as they gain increasingly sophisticated levels of knowledge and skills during the passage from novice to expert levels of understanding.

Like the journeys they demarcate, these progressions vary in length from thick atlases that trace multiyear journeys to maps of much shorter excursions that may last just a few class periods.

Similarly, progressions vary in ambition. Some rely on extensive research and educator input to create maps meant to guide the learning of an entire nation or state. Others are more informal efforts in which one or two teachers draw on their professional experience to predict their own students' trajectories.

Although more common in science, math, and other subjects in which learning can be more easily broken down into a sequence of discrete steps, some evidence suggests that learning progressions are increasingly popular in subjects such as literacy or the arts, where the routes may be less linear, consistent, or well-established.

Regardless of the subject or domain, formative assessment is a key use of learning progressions because it helps teachers pinpoint students' ever-shifting locations on the journey toward expertise.

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National Research Council report on science education described learning progressions as "a promising direction for organizing science instruction and curricula across grades K-8."

"The United States has come late to the table," said Margaret Heritage, a senior scientist at the research group WestEd who wrote the CCSSO report. "In Australia and the United Kingdom, the assessment system is built on a progression. And then here, you meet or don't meet the standards. I think [other nations have] a conception of learning that's more to do with the development of expertise relative to important ideas over time. Often, teaching and learning [in the United States] is conceived of as discrete objectives—you learn something, then move on to something else."

Overcoming that conception is a goal of the Denver learning-progression project, which originally started as a framework for implementing student-learning objectives for the purpose of educator evaluation.

"In a nutshell, we were eager to see if we could move teachers from a perspective that kids either 'get it or they don't' to a perspective in which there is greater interest in understanding the 'messy middle' that exists between a novice understanding of some big-picture idea ... and the target understanding of that big-picture idea after some defined instructional period (e.g., proficiency)," **the University of Colorado's CADRE team wrote in a 2014 report.** "Without this more nuanced understanding of student learning, there is very little that can be done when a student demonstrates a lack of proficiency other than reteach the same material and hope for a better outcome."

Learning progressions have historically been more common in subjects with "clearly identifiable sequences of learning that seem pretty darned obvious," said Popham, adding that "mathematics and science immediately come to mind."

Learning progressions, for instance, are incorporated into the **Common Core State Standards in mathematics**.

In recent years, however, there is evidence that learning progressions in the United States have expanded beyond science or math. One of the most ambitious projects is a set of so-called **"construct progressions" developed to guide the state of North Carolina's K-3 formative-assessment process.** Created with help from the state's four-year, federal Race to the Top \$70 million Early Learning Challenge Grant and the state legislature, these progressions map trajectories in multiple early-learning domains, including cognitive areas like counting, and health and physical realms, such as the development of fine-motor skills.

Using Learning Progressions

These are what Popham categorizes as "uppercase learning progressions." They took years to create because they are based on empirical research and input from subject-matter experts and

Concept Maps

At the start of her beginning-level graphic design class at East High School in Denver, teacher Jody Chapel asks students to create a Google Doodle in any digital program they know how to use in order to formatively assess their previous computer design experience so she can help them progress toward a more advanced level of understanding and skill. Students also draw another Google Doodle so Chapel can assess their drawing experience. The student who created these Doodles had some previous art and design experience.



SOURCE: Jody Chapel and Molly Adler

classroom teachers.

By contrast, "lowercase learning progressions" deal with core, modest outcomes that might take a few weeks to accomplish, Popham said. They are based not on empirical evidence, but on teachers' best estimates.

Regardless of the scope of the progression, educators are an integral part of ensuring that trajectories get used formatively rather than shelved.

"One of the critical features was this assessment has to be a process that is manageable to teachers in the classroom and has to provide information that is useful," said Cindy Bagwell, project administer for North Carolina's Race to the Top Early Learning Challenge Grant. She noted that principal support is also critical if the progressions are to be used formatively.

For similar reasons, Denver curriculum specialists are working with teachers this year on multigrade learning progressions in physical education and the arts. This was a big structural shift, said Elena Diaz-Bilello, CADRE's associate director.

Many of these teachers were "singletons" accustomed to being the only teachers of their type in the schools where they worked. Without a districtwide curriculum to guide them or a next-door neighbor to bounce ideas off, the singletons were all over the map in terms of their approaches for helping students meet the state's content standards, according to Capucine Chapman, the arts and physical education director for the Denver schools.

The standards themselves tended to focus on the acquisition of discrete skills rather than multiyear progress toward big-picture goals like "visual literacy," says Chapman.

This year, teachers like Overby can work from drafts of documents that map these types of larger goals all the way from kindergarten through high school, with suggested activities attached to typical stages of progress for students of that age.

To take the example of visual literacy, the kindergarten trajectory calls for children to "interpret personal connections through stories and artwork." This idea carries all the way into high school, where "visual literacy" is defined as "applying interpretative and reflective strategies to better understand and evaluate artworks in order to develop [a] personal artistic philosophy."

Of course, pinpointing a student's location on a learning progression and then guiding that student to the next milestone is not as straightforward as finding one's way down the interstate. Learning is not always linear.

And then, there are teenagers like Overby's student with the elegant selfie and the inconsistent writing.

"I know I need to give him more attention when we do any kind of reflections," the teacher said. "He's creating things but he doesn't want to think about the why, which, honestly, is very normal in this age group."