Pursuing the DEPTHS of Knowledge

Whether students are engaging in deep learning or just recalling facts, rigorous instruction should be part of the plan.

Nancy Boyles

Good teachers resist the idea of "teaching to the test." But aligning literacy instruction with assessment isn't teaching to the test if that assessment is a valid measure of our students' performance. If the test is rigorous—if it demands deep levels of knowledge—then alignment means asking ourselves, "How can we plan for this rigor in our instruction?"

There's plenty of rigor in today's standards-based literacy assessments to challenge both our students and ourselves. It hasn't always been this way; an analysis of state assessments by Yuan and Le (2012) found that, in both reading and writing, nearly 80 percent of test items assessed students' ability to recall details and apply skills instead of asking them to analyze, critique, or extend their thinking. But the situation is changing. Since 2011, 45 states have revised their standards and raised the levels at which students are considered "proficient" on the state assessments (Peterson, Barrows, & Gift, 2016).

That means more rigor and deeper levels of knowledge. It also means more stress for teachers and students.

Where Planning for Depth of Knowledge Has Gone Off Track

When teachers ask "What does depth of knowledge look like on these new, more rigorous assessments? How do we prepare students for this kind of thinking?" they are often referred to well-known models like Bloom's Taxonomy, with its six cognitive process levels—*remember, understand, apply, analyze, evaluate, and create* (Armstrong, n.d.).

But guidance based on such models has often been too general in nature, and sometimes even misleading. For

© ADAM NIKLEWICZ/THEISPOT

instance, some schools have expanded the use of projects in the belief that projects automatically require higher-level skills, such as "creating" and "evaluating." Teachers have found themselves asking students to complete tasks like "Draw a map of your dream bedroom" or "Create a life-size model of Sarah from *Sarah Plain and Tall*." Such tasks are substantially off base when it comes to increasing the kind of rigor that the new assessments demand.

Other teachers have been advised to use "verb wheels" (which sort verbs into the various cognitive domains) and to design learning tasks that tap into "high-level" verbs (*assess*, *plan*, *justify*) instead of "low-level" verbs (*identify*, *list*, *locate*). But this advice isn't very helpful either. For example, *describing* doesn't fit neatly into one category. We might ask students to describe a character based on details retrieved directly from a text; such a task would represent a low level of knowledge. Or we could ask them to describe similarities and differences in the way an author portrays characters in two different texts, a much more robust, high-level task.

We need a better way to teach for depth of knowledge and prepare our students for today's standards-based assessments.

Plumbing the Depths of Knowledge

We might begin by familiarizing ourselves with the types of questions students are likely to encounter on these assessments, and reflecting on the different levels of thinking that these questions demand. Here, I'll draw on a sampling of questions from the Partnership for Assessment of Readiness for College and Careers (PARCC) and the Smarter Balanced Assessment Consortium (SBAC)[1] and consider how these test items represent four depth-of-knowledge levels identified by Norman Webb (Aungst, 2014): *recall and reproduction, skills and concepts, strategic thinking and reasoning, and extended thinking*.

Level 1: Recall and Reproduction

Tasks at this level require recalling facts and locating information in the text to answer questions about *who, what, when, where, why,* and *how*. Students either know the answer or they don't. The answer is either right or wrong. Sample multiple-choice assessment items reflecting this level include

- What is the meaning of *trudged* as it is used in paragraph 10 of the folk tale?
- Which sentence from the folk tale helps the reader understand the meaning of *trudged*?

Two-part questions like this one can relate to any aspect of literary or informational text—character analysis, plot

development, text structure, and so on.

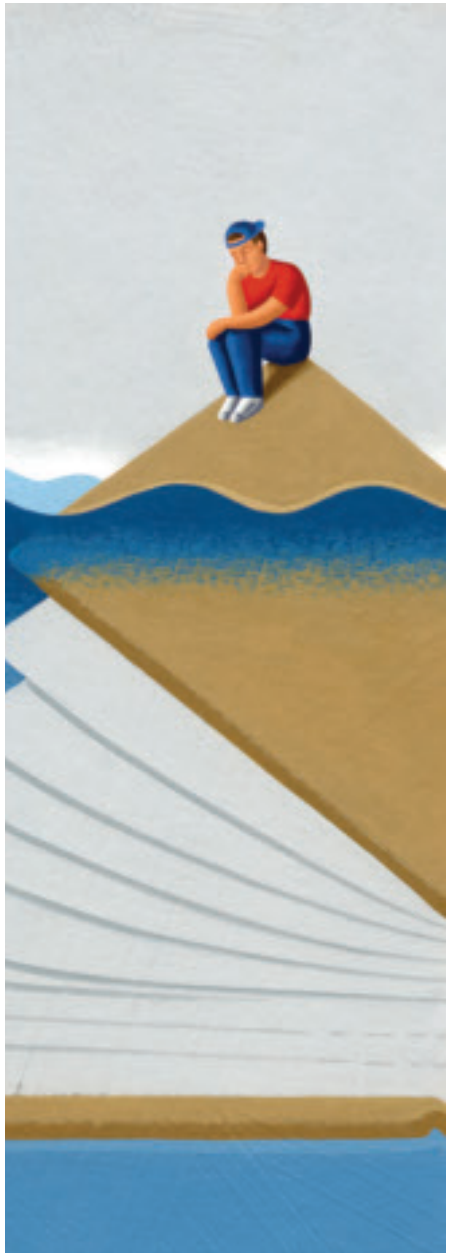
When we engage students in instruction at Level 1, it may seem that responding correctly is almost too low an expectation. All the student needs to do is go back to the text and pick out the right words. But therein lies the problem—going back to the text. Too many students rely on their memory or prior knowledge rather than taking the time needed to revisit the passage to ensure accuracy. The result is wrong answers or answers with evidence that's too vague or general. When this happens, I send students back to their seats with feedback and the perhaps surprising news that their goal wasn't just getting the job done, but getting it done *correctly*.

So where's the rigor in instruction at Level 1? For teachers, it's in maintaining high expectations for all learners and in providing honest, specific, and immediate feedback. For students, the rigor is in holding themselves accountable for spot-on accuracy, choosing the very *best* evidence. If we don't convey to students that literacy expertise is founded upon precision rather than "close enough," students will have little to build on for deeper levels of thinking.

Above all, it's important to give Level 1 the respect it deserves. Recall and reproduction are components of all depth-of-knowledge levels because all reading comprehension must be based on textual evidence.

Level 2: Skills and Concepts

Assessment tasks at Level 2 ask students to make some decisions about how to approach the problem or activity. Questions still tend to have one correct answer, although for open-ended questions the responses might be stated in different ways. Assessment



items at this level might include

- What is the meaning of the quote, "One small step for man, one giant leap for mankind"?
- Which words *best* describe the character ___?

This level is most familiar to teachers because it's about skills, and skills have been the focus of our literacy instruction forever. "We've got this!" we think. But there's some rigor here we may not anticipate, and without careful planning, we won't be able to maximize our students' capacity to handle this level of knowledge.

The rigor for teachers in building students' literacy skills is in the masterful delivery of each instructional step—explaining, modeling, and practicing. The rigor of the explanation tends to fall off our teacher radar. We think we've explained well if we've clearly describe an objective at the outset of our lesson: "Today we're going to work on *summarizing*. A summary is a brief account of a story or informational selection that includes only the main points."

This is a reasonable start—we've identified the *what*. But students also need the *how*: How will they find the evidence that should go into their summary? To unpack this process, we might teach students the following steps:

1. Include only the *actions* throughout the story.
2. Do not include details that are just *descriptive* (like what a character looks like).
3. Make sure all the actions you include connect the problem to the solution.

The rigor for students at Level 2 lies in achieving independence with the skill. It's essential, therefore, that teachers provide explicit instruction that gradually releases responsibility. Too often we provide the same level of skill support day after day, as if more practice with "main idea" or "author's purpose" will eventually cause the idea to sink in. This mistake accounts for the disconnect between what students can do during a lesson when they're heavily guided by their teacher and what they can do on assessments, when teacher scaffolding is no longer

available. We will plan more effectively for skill instruction if, at the end of every lesson, we ask ourselves, What can students do more independently today than they could do yesterday?

Bottom line—students need to master Level 2 (literacy skills) because they'll need to use these skills when they move on to the deeper levels of knowledge

Level 3: Strategic Thinking and Reasoning

Assessment tasks at this level ask students to use logic as well as evidence and to think more abstractly about a text. Questions have more than one possible answer, and students must justify their responses. Examples include

- What is the theme (or main idea) of the passage? Use details from the passage to support your answer.
- What effect does the author create by using the phrase ___?
- What is the most likely reason the author included a map of ___?
- Which details from the text are irrelevant to the author's claim?

When we argue that the new assessments are "really hard," we're recognizing that there are many items that fall within depth-of-knowledge Levels 3 and 4—and yes, right now these may be hard for our students. But there's much we can do in our instructional planning to make sure students become more comfortable with seriously deep thinking.

To plan effectively for instruction at Level 3, we need to first understand what we're planning *for*. A few guiding principles stand out:

- Students will need to do a lot of inferring. For planning purposes, you may want to encourage students to look for the theme (or central idea) of a text right from the beginning, rather than waiting until they get to the last paragraph and then asking: "What's the theme?" Teach students that a theme is evident throughout a text.
- Students will need to think like an author, pondering why the author made particular choices in crafting a text: Why did the author repeat that line or include this flashback? This is what we mean by "reading like a writer," and if you teach it well, it will improve students' writing as well as their reading.
- Students will need to understand both the external structure of a text (why it was organized in a particular way, such as *problem/solution* or *compare/contrast*) and its internal structure (how various parts of a text fit together). Guide students to ask questions like, What is the purpose of this paragraph? Does it introduce a problem? Show a contrasting point of view? What is the author trying to show?
- Students will need to think critically about what they read: What is relevant and irrelevant, what is the *best* evidence, and what could the author have explained more clearly? Teach students to become text critics: What works for them, and what doesn't, as critical consumers of information?

Depth-of-knowledge Level 3 is a tall order. Rigor for teachers lies in providing ample opportunity for close reading of complex text that's rich in meaning as well as craft. It's about fewer worksheets and more conversations. Are we making time for students to talk about texts in small groups where the focus is on evaluating meaning through dialogue? Are we pushing students to explain how they arrived at a particular answer?

For students, the rigor at this level is in the quality of their insights. In some ways, the Common Core has led us down a path where the evidence itself has become the main reading goal. But evidence alone will never define a great reader. The very best readers *use* evidence to achieve their own personal "aha!" moments.

> There's plenty of rigor in today's standards-based literacy assessments to challenge both our students and ourselves.

Level 4: Extended Thinking

Assessment tasks at this level ask students to integrate information from multiple sources. Sample items include

- Explain what Source #1 and Source #2 say about ___, putting ideas into your own words to avoid plagiarism.
- A central idea of these articles is ___. Provide two pieces of evidence from different sources that support this idea and explain how each example supports it.
- Which source most likely has the most useful information about ___? Explain why this source is likely to be the most helpful.
- Which source does a better job of explaining ___? Provide three pieces of evidence from the source to

support your answer.

■ Compare and contrast the way the author develops the central idea of ___ in the two texts we read. Use details from both sources to support your explanation.

■ Explain how each of the selections you read about [topic] could be useful to someone writing about this topic.

To prepare students for mastery of this deepest level, teachers need to plan more lessons that ask students to make connections among different sources (which could include not only print materials, but also videos, audio recordings, illustrations, and so on). Ideally, teachers will plan for the close reading of Source 1, a similar analysis of Source 2, and then a lesson on the integration of both sources.

But just including text-to-text lessons is not enough. A good text connection lesson will ask students to tap into a key similarity or difference between sources, raising a question that brings students to a deeper knowledge of both texts through that connection point. For example, a teacher may present two articles about the importance of clean drinking water: a news article with graphs and charts of places in the world that lack sufficient clean water; and a journal entry, which includes a photo, from a child who walks miles each day to collect clean water in heavy buckets for her family's use. To generate thoughtful comparisons of these texts, the teacher might ask questions like,

■ Which source would have been more likely to convince you to contribute money to a clean-water campaign? Why? How did the author make his argument convincing?

■ Which source would you use if you were writing a report and wanted to show how lack of clean water is a global problem? What details would be the strongest to prove your point?

There's much we can do in our instructional planning to make sure students become more comfortable with seriously deep thinking.

■ Source 2 (the journal entry) contains a photograph of a child carrying water in heavy buckets. How could including this same photograph in Source 1 (the news article) have added to that author's message?

For teachers, the rigor of Level 4 lies in inventing the best connection points to bring students to a deeper level of understanding. For students, the rigor of Level 4 may be achieved when meaning leaps off the page and inspires a call to action: How can I use my new knowledge to help solve this problem? Depth-of-knowledge Level 4 will enable both teachers and students to flex thinking muscles they didn't even know they had, well beyond the demands of any test. Imagine the possibilities if we could teach all our students to read their world with such depth.

A New Lens

I suggest a new lens for examining rigor within instruction. If we view rigor as applying only to higher-level thinking, we're overlooking foundational textual knowledge that students need to fully grasp the deeper complexities of a text. As we reflect on our instruction, we should make sure we're not only including all four levels of depth of knowledge—*recall and reproduction, skills and concepts, strategic thinking, and extended thinking*—but also holding ourselves and our students accountable for rigor at every level. EL

[1]Although several states have now abandoned PARCC and SBAC, the items on newly designed alternative assessments are likely to follow the format and specifications of these tests. Additional sample items are available at SBAC Scoring Guides for Sample Assessment Items (http://sbac.portal.airast.org/practice-test/resources/#scoring) and PARCC English Language Arts/Literacy Practice Tests (http://parcc.pearson.com/practice-tests/english).

References

Armstrong, P. (n.d.) *Bloom's taxonomy*. Retrieved from Center for Teaching, Vanderbilt University at https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy

Aungst, G. (September 4, 2014). *Using Webb's depth of knowledge to increase rigor*. Retrieved from Edutopia at www.edutopia.org/blog/webbs-depth-knowledge-increase-rigor-gerald-aungst

Peterson, P. E., Barrows, S., & Gift, T. (2016). After Common Core, states set rigorous standards. *Education Next, 16*(3). Retrieved from www.educationnext.org/after-common-core-states-set-rigorous-standards

Yuan, K., & Le, V. (2012). *Estimating the number of students who were tested on cognitively demanding items through the state achievement tests*. Santa Monica, CA: RAND. Retrieved from www.rand.org/content/dam/rand/pubs/working_papers/2012/RAND_WR967.pdf

Nancy Boyles (nancyboyles@comcast.net) is a professional development provider and a professor of reading emerita at Southern Connecticut State University. She is the author of nine books on reading comprehension.