Standards Writers Wade Into Curriculum

Lead Authors of English/Language Arts Issue ‘Publishers’ Criteria’

By Catherine Gewertz

New guidelines on crafting curriculum materials for the common standards in English/language arts are re-igniting debate about how to ensure a marketplace of good instructional materials for the new standards without crossing the line into telling teachers how to teach.
The focal point of the conversations is a set of “publishers’ criteria” issued recently by the two lead writers of the English/language arts section of the common standards, which have been adopted by all but five states.

Working under a contract with the Bill & Melinda Gates Foundation, an avid backer of the standards, David Coleman and Susan Pimentel wrote a pair of documents highlighting the key ideas of the standards and describing the qualities of instructional materials they consider a faithful reflection of them.

Vetted informally among publishers, researchers, state officials, teachers, and others, the documents are being circulated more widely now, and are eventually headed for posting online to guide not only publishers, but also anyone developing curriculum for the standards.

The criteria center on aspects of the standards that represent a significant shift. The heart of that shift is an intense focus on close examination of text as the source for study across disciplines. Students are expected to learn how to conquer increasingly complex readings, both literary and informational; infer meaning from what they read, and build arguments based on evidence from the text. The guidelines discourage work that does not demand deep understanding of the studied text.

“Eighty to 90 percent of the reading standards in each grade require text-dependent analysis; accordingly, aligned curriculum materials should have a similar percentage of text-dependent questions,” say the criteria for grades K-2.

“Materials should be sparing in offering activities that are not text dependent,” say the criteria for grades K-2. “Whether written or spoken, responses based on students’ background knowledge and the experiences they bring to school are not sufficient.”

The impetus behind the criteria, Ms. Pimentel and Mr. Coleman said in a joint phone interview, was to respond to teachers’ requests for support by helping them focus on the cornerstones of the standards and understand how classroom work will have to change to reflect them.

“It’s almost a betrayal to support setting higher standards without some effort in that direction,” Mr. Coleman said.

“If you’re asking students to be able to look at text and draw evidence from it, it means they need to be given text, with good teacher support, but without a lot of excessive spoon-feeding up front,” Ms. Pimentel said.

Questions play a crucial role in helping students master what they’re reading, she said. She cited a question that might be posed by instructional materials or by a teacher: “In the Gettysburg Address, Lincoln says the nation is dedicated to the proposition that all men are created equal. Why is equality an important value to promote?”

“It gets kids off and running, but we’ve totally left the text,” Ms. Pimentel said. “They don’t need the text to answer that question.”

Validating Materials

The two publishers’ criteria documents, totaling 24 pages, land in a swirl of discussion about how to create good curricula for the common-core standards, which emerged from an initiative led by the nation’s governors and state schools chiefs. One central tension in the discussion has been trying to address the need for instructional tools without dictating pedagogy; another has been the question of how classroom work will have to change to reflect them.

Leading advocates of the standards have been trying to think through possible approaches to validating curricula as sound embodiments of the standards. They have discussed creating a panel of experts to review materials for alignment, or designing a validation process that educators and publishers could use.

But no moves have been made to do either, partly because other sectors’ models don’t translate well to education and partly because of sensitivity to issues of influence over curriculum, according to participants in those talks.

The Gates Foundation, for instance, has convened conversations that included representatives from other sectors, among them the environmental-protection and food industries, to talk about how their certification processes might inform parallel work in the curriculum world.

Jamie McKee, who helps lead common-standards work for the Seattle-based Gates Foundation, said that while the foundation “cares deeply about the quality of the instructional materials that come from the common core,” it hasn’t yet decided whether it favors a panel or process for validating such materials. The foundation continues to listen to a range of views about “what comes next for the standards, and how to find the right balance” between helping the field produce a range of sound instructional materials and wading into judgments about products, she said.

Teacher Training

Some of those involved in the discussions about curriculum validation see the publishers’ criteria as a way to offset the need for any official certification process or body, by responding to educators’ requests for guidance and building the field’s grassroots knowledge about good curriculum.

“These new publishers’ guidelines are a way to have that conversation quickly and in a nonthreatening way,” said Michael D. Casserly, the executive director of the Council of the Great City Schools, a Washington-based group that represents the country’s largest districts.

Linda P. Chen, the deputy chief of the office of teaching and learning in the 154,000-student Philadelphia schools, said the criteria will help the district’s teachers as they adapt to the standards. They’ve been crafting performance-based tasks to gauge learning, and the criteria can help teachers think about the design of those tasks, she said.

She worries, however, that it will be difficult for teachers and for district and state curriculum officials to evaluate publishers’ claims that their materials reflect the new criteria.

“You really have to know your stuff in order to know whether or not they’re quality materials,” Ms. Chen said. And she cautioned that the new standards are at “such a high level” that intensive professional development—not just curricular criteria and materials—will be required for teachers to make the transition.

Educational publishing companies see that need as well. James O’Neill, the senior vice president of K-12 portfolio management at Houghton Mifflin Harcourt, said good teaching of the common core will require far more than “handing out new sets of materials.”

“There is a huge teacher-training element here, and from a business standpoint, that is our highest demand right now,” he said. “Professional development is what’s driving the common-core market.”

The new publishers’ criteria are “incredibly helpful” as Boston-based Houghton Mifflin designs materials for the common standards, Mr. O’Neill said. But the uptake of materials that truly reflect the big changes called for in the standards lies in the hands of the states and districts that a decide whether to buy them, he said.

“These criteria aren’t a cookbook for publishers,” he said. “The cookbook is provided by the states and districts. That’s who we take our lead from. Those are our customers. Everything depends on how they interpret the standards and put their curriculum together.”

Venturing Into Pedagogy?

Some leaders in the field take issue with the publishers’ criteria. Barbara Cambridge, the director of the Washington office of the National Council of Teachers of English, said...
her organization agrees that it’s important to articulate how materials should reflect the standards. But the new publishers’ criteria “signal a usurpation of teacher judgment in ways that are alarming.”

For instance, the K-2 criteria advise teachers to read texts aloud to pupils themselves rather than use recordings, when there might be “perfectly legitimate places to use recordings” in the classroom, Ms. Cambridge said. She also faulted the document for shortchanging the value of children’s own experiences in responding to what they read.

“The way we learn something new is to attach it to something we already know,” she said. “So of course what kids bring to school isn’t sufficient, but it’s important. And to imply we shouldn’t spend time on it, with 1st and 2nd graders, is just bad advice.”

Barbara A. Kapinus, who helped shape the standards as a senior policy analyst with the National Education Association, said she was upset by the way the publishers’ criteria ventured into pedagogy. For instance, she said, advising that “fluency should be a particular focus” of materials for 2nd graders could lead teachers to put a premium on it, despite the developmental variations in when children reach fluency.

She also criticized the criteria for advising teachers to teach reading strategies only “in service of reading comprehension, not as a separate body of material.” Good reading instruction, she said, requires pulling out and practicing specific skills.

“This isn’t just a description of what curriculum should look like, it’s a teaching guide,” Ms. Kapinus said. “I’m afraid people will take this and say, This is what instruction has to look like.”

Mr. Coleman and Ms. Pimentel said they did not intend the criteria to be a teaching guide and are open to feedback about revisions that would address those concerns.

Some policymakers who oppose the standards saw the criteria as a step toward concentrating too much influence over curriculum and instruction in the hands of too few people.

“The very people writing [the standards] are the ones telling everyone else how you’re supposed to comply,” said Walt Chappell, a member of the Kansas state board of education. “What we have is a group of people dictating to everyone else what’s to be taught in every classroom, to every student.”

Mr. Coleman said the criteria were an attempt to do the opposite: to “distribute power, to give people the understanding they need to make decisions” about curricular materials.

And what some see as a concentration of influence, others see as welcome guidance from valued sources.

“A lot of people have been looking to the
Higher Ed. Gets Voting Rights on Assessments

By Catherine Gewertz
Alexandria, Va

A group of states that is designing tests for the common academic standards has taken a key step to ensure that the assessments reflect students’ readiness for college-level work: It gave top higher education officials from member states voting power on test-design questions that are closest to the heart of the college-readiness question.

At its quarterly meeting on April 3, the governing board of the Partnership for Assessment of Readiness for College and Careers, or PARCC, voted unanimously to give members of its advisory committee on college readiness voting power on four issues: how to describe the expected performance levels on the tests, who will set the cutoff scores for the tests, what evidence will be used to decide the cutoff scores, and, crucially, what the cutoff scores will be.

The move puts the highest-ranking officials from one college or university system in most of PARCC’s 24 member states at the voting table, alongside its governing board—the K-12 schools chiefs from each member state—when it comes to the most pivotal questions about crafting tests that reflect college readiness.

Richard M. Freeland, the commissioner of higher education in Massachusetts and co-chairman of PARCC’s college-readiness advisory committee, told the governing board that getting an active voice in the test-shaping process was something “we enthusiastically endorse and are happy to put our energy behind.”

The consortium is “taking a huge step in operationalizing” a definition of college readiness that reflects higher education’s expectations, Mitchell D. Chester, the commissioner of K-12 education in Massachusetts and the chairman of PARCC’s governing board, told the meeting participants.

Support Pivotal

PARCC’s decision illustrates the importance that states are placing on higher education’s embrace of the common-standards tests as proxies for college readiness. Colleges and universities pledged support to the idea. But their willingness to actually use the final tests as proxies for readiness—to let students skip remedial work and go right into entry-level, credit-bearing courses—is considered pivotal to the success of the common-standards initiative, which rests on the idea that mastery of those expectations will prepare students for college study.

“This verges on being historic,” said David T. Conley, an Oregon researcher widely known for his work to define college readiness. “In the U.S., on this scope and scale, it’s unprecedented to have this level of partnership between postsecondary systems and high school on a measurement of readiness.”

PARCC and another group of states, the SMARTER Balanced Assessment Consortium, have $360 million in federal Race to the Top money to design assessment systems for the Common Core State Standards. The standards, which cover English/language arts and mathematics, have been adopted by 46 states and the District of Columbia.

When the U.S. Department of Education offered test-design funding to groups of states, in April 2010, it asked for assessment systems that can serve many purposes. Those include measuring student achievement as well as student growth, judging teacher and school performance, offering formative feedback to help teachers guide instruction, and providing gauges of whether students are ready—or are on track to be ready—to make smooth transitions into college and good jobs.

Leaders of both consortia recognize that much is riding on the support of higher education, since the common-standards initiative rests on the claim that mastery of the standards—and passage of tests that embody them—indicate readiness for credit-bearing entry-level coursework. If colleges decline to use the tests to let students skip remedial work, that could undermine the claim that the tests reflect readiness for credit-bearing study.

That thinking was woven through the Education Department’s initial invitation to the states to band together to design the tests. To win grants in that competition, the consortia had to show that they had enlisted substantial support from their public college and university systems. Both did so.

The Challenge of Consensus

Whether those higher education systems maintain their support for the final tests remains to be seen, however. Skeptics have noted that getting states’ K-12 systems and their diverse array of college and university systems to agree on cutoff scores that connotes proficiency in college-level skills, for instance, will be challenging.

“This cut-score thing is going to be a nightmare,” Chester E. Finn Jr., the president of the Thomas B. Fordham In-
stitute, a Washington think tank, said at an August 2010 meeting of the National Assessment Governing Board, which sets policy for the National Assessment of Educational Progress, or NAEP. “I’m trying to envision Georgia and Connecticut trying to agree on a cut score for proficiency, and I’m envisioning an argument.”

PARCC’s college-readiness committee will not only vote on test-design issues, but it also already plays an active role in the consortium’s strategy to engage higher education colleagues in dialogue about the assessment and enlist their support, PARCC officials said. The consortium’s higher education leadership team, which includes additional college and university leaders, is also playing a leading role in that dialogue and engagement.

The SMARTER Balanced Assessment Consortium’s nine-member executive committee includes two higher education representatives with full voting power: Charles Lenth, the vice president for policy analysis and academic affairs for the State Higher Education Executive Officers, a Boulder, Colo.-based group, and Beverly L. Young, the assistant vice chancellor of academic affairs for the California State University system.

In addition, the consortium has appointed higher education representatives from each member state to provide input into test development and coordinate outreach to colleges and universities in their states. Higher education representatives also take part in 10 “work groups” that focus on key issues, such as psychometrics, technology, and accessibility and accommodations.

The consortium’s governance structure “is designed to ensure input from higher education through representation on the executive committee, collaboration with higher education state leads, and participation in state-led work groups,” said consortium spokesman Eddie Arnold.

Mr. Conley, who advises the SMARTER Balanced group, said it is important to have higher education representatives at the table during test design to create a shared concept of the skills necessary to college success and how to measure those on a test. But he cautioned that those ideas must also have the support of college faculty members—not just their leadership—if the idea of shared standards is to succeed.

Discussion at the PARCC governing board meeting offered hints about the difficulty of getting consensus on critical issues of test design.

Soliciting feedback from board members, Mary Ann Snider, Rhode Island’s chief of educator quality, asked how many performance levels they thought the tests should have: three, four, five, or some other number. Most states voted for four levels, largely mirroring the current practice in most PARCC states. Ms. Snider asked when indicators of being “on track” for college readiness should first appear on test results: in elementary, middle, or high school. Most members voted for elementary school.

She also asked whether the tests should show only how well students have mastered material from their current grade levels, or how well they’ve mastered content from the previous grade level, too. Responses came back deeply divided.

**Bumpy Road Ahead**

That question attempted to explore an important part of the dialogue about the new assessments: how to design them so they show parents, teachers, and others how students are progressing over time, rather than provide only a snapshot of a given moment. But the prospect of having a given grade’s tests reflect students’ mastery of earlier grades’ content raised some doubts on the board.

“If I’m a 5th grade teacher, am I now responsible for 4th grade content in my evaluation?” asked James Palmer, an interim division administrator in student assessment at the Illinois state board of education.

Gayle Potter, the director of student assessment in Arkansas, said it’s important to give parents and teachers important information about where students are in their learning. But she also said she worried about “giving teachers mixed signals” about their responsibility for lower grades’ content.

Some board members noted that indicators of mastery of the previous year’s content would be helpful in adjusting instruction. But others expressed doubt about whether a summative test was the best way to do that. Perhaps, they said, that function is better handled by other portions of the planned assessment system, such as its optional midyear assessments.

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Districts Gird for Added Use of Nonfiction

By Catherine Gewertz

In an English/language arts classroom in Iowa, 10th graders are analyzing the rhetoric in books about computer geeks, fast food, teenage marketing, the working poor, chocolate-making, and diamond-mining.

Their teacher, Sarah Brown Wessling, let them choose books about those real-world topics as part of a unit on truth. Students are dissecting the sources, statistics, and anecdotes the authors use to make their arguments in books like *Branded* by Alissa Quart and *Nickel and Dimed* by Barbara Ehrenreich. An earlier unit in the class at Johnston High School, in a Des Moines suburb, focused on film documentaries.

The units mark a heftier emphasis on nonfiction for Ms. Wessling. What she is doing reflects an intensifying focus for teachers across the country: how to develop students’ skills at reading and understanding informational texts.

Teachers are rebalancing their fiction-and-nonfiction scales because the Common Core State Standards in English/language arts demand it. Since all but four states have adopted those guidelines, millions of teachers are now faced with the challenge of revising materials and instruction accordingly.

“Often, our nod to nonfiction is the autobiography or true-story version of something,” said Ms. Wessling, who was the 2010 National Teacher of the Year. “But there’s a real gap in other kinds of nonfiction. Students absolutely understand how to read a piece of fiction with a beginning, middle, and end. But that’s not how you read things like *Nickel and Dimed*. It’s a much slower process.

“I’m relying on different kinds of strategies and a lot more explicit teaching,” she said. “We spend a lot of time talking about attributes of nonfiction, like how to read an interview. Or how to tell the difference between fact and opinion.”

As states and districts press more deeply into informational text, however, some experts are cautioning them to maintain a proper balance with fiction.

“While we think the emphasis on informational text is a useful idea, our concern is that it could move from being an emphasis to a sole approach,” Richard M. Long, the director of governmental relations for the International Reading Association, said in an email. “Using fiction has many positive and useful values, and it shouldn’t be lost or pushed so far to the sidelines that it disappears.”

Every state and district official interviewed for this story hastened to note, without being asked, that fiction would maintain a central position in the curriculum.

Addressing a Need

The common standards’ emphasis on informational text arose in part from research suggesting that employers and college instructors found students weak at comprehending technical manuals, scientific and historical journals, and other texts pivotal to their work in those arenas.

Influencing the standards, also, were the frameworks for the National Assessment of Edu-
cational Progress in reading, which reflect an increasing emphasis on informational texts as students get older. They draw equally from informational and literary passages at the 4th grade level. But by 8th grade, the tilt toward informational reading reaches 55 percent, and by 12th grade, it’s 70 percent.

The common core’s vision of informational text includes literary nonfiction, as well as historical documents, scientific journals and technical manuals, biographies and autobiographies, essays, speeches, and information displayed in charts, graphs, or maps, digitally or in print. Helping students tackle complex examples of such genres across the disciplines—from English to engineering—bolsters them for work and higher education by building foundational knowledge, vocabulary, and literacy strategies, common-core advocates contend.

Many states and districts are responding to the new emphasis on nonfiction with new materials and training.

New York City singled out informational text as this year’s focus in its work to get ready for the common standards in English/language arts.

Josh Thomases, the deputy chief academic officer for instruction, said the district conducted professional development aimed at helping teachers think through how to craft instructional units and tasks reflecting the shift in the standards. Teachers at each of the 1,700 schools in the city developed one unit and task and are now discussing them in multischool meetings, he said.

To support that work, the 1.1 million-student district set up a digital “common-core library” that includes 13 “bundles” of sample activities, lesson plans, and other resources for instruction based on informational text. One example, from 3rd grade, is based on learning about sharks.

The immediate challenge of the informational-text emphasis, however, lies more in training than in materials, Mr. Thomases said.

“Most teachers are not taught how to teach reading,” he said. “Teachers, especially secondary teachers, need help figuring out what they’re going to do to pause long enough in the teaching to have students grapple with text describing the real world. That’s our task.

“It’s not so much that we have the wrong materials in our schools, but [it’s] actually figuring out how to structure classrooms so we speak to text and kids are using text in conversations with each other and are grappling with the meaning of text. We can do that with the texts at hand,” he said.

“In the longer term, yes, we need to make sure that by the end of high school, students are reading science journals,” Mr. Thomases continued. “But right now, just simply the act of reading the science textbook and absolutely making the textbook—rather than the teacher—generate the answers. ... If we did that in every classroom across America, we would see very different outcomes.”

Two-thirds of the schools in New York City opt in to the district’s curriculum, Mr. Thomases said. The district is talking with publishers to “push the vendor community” to create a literacy curriculum it considers reflective of the common standards, he said.

Publishers Respond

Pearson, for one, is including more “content-rich nonfiction” material in its K-12 programs, said Mike Evans, who oversees math and reading products for the New York City-based education company. In an upcoming revision of its Reading Street program, a 4th grade unit on patterns in nature includes text selections on tornado sirens and the migration of Arctic terns. Supporting materials walk teachers through ways to help students “unlock” those texts, Mr. Evans said in an email.

Designers working on a new digital curriculum in a joint project of the Pearson Foundation and the Bill & Melinda Gates Foundation aim to reflect the new standards’ emphasis as well.

The literacy curriculum is still being created. But one idea under consideration is a 5th grade unit on networks that would blend reading about the Underground Railroad with study of very different types of networks, such as online social networks and political-advocacy networks, said Sally Hampton, who is one of the curriculum designers on the project and also served on the panel that wrote the English/language arts common standards.

In the past two years, New York City-based Scholastic Education has seen a rise in demand for training to help teachers teach reading of informational texts, said Patrick Daley, the senior vice president of the company’s classroom and community group, which writes K-10 English/language arts programs.

“It’s one thing to tell school districts that we must do close reading of informational text,” he said. “It’s very different to say, ‘Here is what’s involved with a close reading.’”

Last summer, Scholastic launched Everyday Literacy, a K-6 program that incorporates brochures, catalogs, menus, and other text types, and includes suggestions for ways teachers can walk students through the elements in each type of text, Mr. Daley said.

This spring, it plans to launch XBOOKS, a print and digital middle school program with strands on such topics as forensics, which will explore DNA analysis and fingerprinting.

Florida’s Broward County school district is spending $787,000 to put a new Scholastic program, Buzz About IT, into all its K-2 classrooms in response to the new standards’ emphasis on informational text (which is abbreviated in the program’s title). The read-aloud program will supplement the 258,000-student district’s core elementary literacy program, Macmillan McGraw-Hill’s Treasures, said Teri Acquavita, an elementary reading-curriculum specialist in the district.

She said that Treasures does include some informational text, “but not sufficiently, we would say. We wanted something that would supplement that.” The district is now weighing options for similar supplements for grades 3-12, Ms. Acquavita said. Supplements for the early grades came first because Florida is rolling out the common standards in phases, beginning in the lower grades, she said.

Meanwhile, Broward’s elementary reading coaches have met with Nell K. Duke, the Michigan State University professor who wrote Buzz About IT, and are meeting monthly to study her research, Ms. Acquavita said. They also have had training in the program from Scholastic. Next year, the state will conduct a full review of its statewide materials adoption, she said.

Budgets Tight

Funding for materials and professional development that reflect the standards could prove to be an issue for states, and, as a result, for companies that produce them, said Jay Diskey, the executive director of the school division of the Association of American Publishers.

“We have been unpleasantly surprised that a number of states are only now starting to wrestle with the cost of this,” he said. “The three traditional drivers of this market are...
New Details Surface About Common State Assessments

By Catherine Gewertz

W ith one set of academic standards now serving as the educational guideposts in nearly every state, questions are hovering about what the tests for those standards will look like. But gradually, details are emerging that show plans that could fundamentally change the U.S. testing landscape.

Documents issued by the two groups of states that are designing the tests show that they seek to harness the power of computers in new ways and assess skills that multiple-choice tests cannot. Those plans are very fluid, however, since several years of design, dialogue, revision, piloting, and reworking lie ahead before the assessments are ready in 2014-15. But early documents offer glimpses of the groups’ thinking.

“This stuff is a very big deal, and it’s a huge departure from the kinds of tests most kids currently take,” said Chuck Pack, a national-board-certified math teacher at Tahlequah High School, in Tahlequah, Okla., a small town outside Tulsa.

“As classroom teachers, we’re sitting here waiting to know what our kids are going to be expected to do. We have the standards—what they’re supposed to know—but now how are they supposed to be able to demonstrate that? Documents like this help us get our heads around that,” said Mr. Pack, who serves on an advisory board that is guiding CTB/McGraw-Hill as it designs “next generation” assessments.

The information is trickling out in solicitations issued in the past two months by the SMARTER Balanced Assessment Consortium and the Partnership for Assessment of Readiness for College and Careers, or PARCC, for vendors to work on the tests. Those two consortia of states are using $360 million in federal Race to the Top money to create new assessments for the Common Core State Standards, which all but four states have adopted.

“Every major publisher that has been a state assessment contractor in the past, and many others with an educational reform orientation, are paying attention” to those solicitations, said Alan J. Theimann, the legislative counsel for the Association of Test Publishers.

A Dec. 30 solicitation by PARCC, seeking vendors to write test items, describes the consortium’s vision of its testing system in more detail than did previous documents. It expects to award that contract in April to “multiple” vendors to design half the test items, and renew the contract to some of those vendors to craft the rest.

The solicitation covers the development of the two pieces of the test that will yield students’ summative scores in mathematics and English/language arts and be used for accountability purposes: a computer-based end-of-year test and a performance-based assessment given toward the end of the year. The scope of work also includes developing midyear formative assessments that are part of PARCC’s system but are optional for states.

Digging Into Text

A preliminary blueprint of PARCC’s English/language arts exam shows that the performance-based assessment, spread over two days, would involve a “research simulation” that asks students to read a suite of texts, including an “anchor” text such as a speech by a prominent historical figure. They would have to answer questions that require them to cite evidence from the text for their answers and write an essay. Another aspect of the performance-based test would require students to “engage” with literature (grades 3-5) or conduct literary analysis (grades 6-11) using a combination of shorter and longer texts.

The end-of-year exam would employ six literary and informational texts and ask...
students to respond to machine-scorable questions, including ones that demand comparison and synthesis of the readings.

The end-of-year test in English/language arts would yield at least half of a student’s points in that topic. One-third to one-half would come from the performance-based test, according to the preliminary blueprint.

PARCC’s math test will include three types of questions: “innovative,” machine-scorable, computer-based items; items that call for written arguments or justifications; critiques of mathematical reasoning, or proof that students “attended to precision” in math; and items involving real-world scenarios. The performance-based assessment in math will count for 40 percent to 50 percent of a student’s points in that subject, and the end-of-course exam will yield 50 percent to 60 percent of the points.

The math exams will focus on solving problems in the “major content areas” at each grade level, as well as demonstrating conceptual understanding, fluency and mathematical reasoning, and applying knowledge to real-world problems.

At the high school level, PARCC will develop two series of end-of-course math tests: a traditional one—Algebra 1, geometry, and Algebra 2—and one that integrates those topics. Those parallel pathways reflect choices educators can make about how to design math courses from the common standards.

The solicitation document answers a question that had been circulating among some educators of young children. PARCC said that its tests will be given by computer to students in grades 6-11, but those in grades 3-5 will answer questions with pencil and paper because of concerns about younger children’s keyboarding skills.

**Teacher Participation**

Documents issued recently by the SMARTER Balanced consortium offer a less-descriptive preview of its tests, largely because work on an earlier solicitation, to design item specifications, isn’t yet complete, and inform other parts of the test design. That request for proposals, issued in July, and its content specifications, released in August, represent the most detailed version of the consortium’s ideas. (See Education Week, Aug. 24, 2011.)

In a request for proposals issued last month, SMARTER Balanced seeks development of 10,000 selected-response or constructed-response items and 420 performance tasks in math and English/language arts to facilitate pilot-testing in the 2012-13 school year. Most will be scored by machine, the document says.

Part of the work will be conducting research to find out which types of items are best suited to automated scoring and which must be scored by hand.

The request for proposals also asks the prospective vendor to hire and train teachers from SMARTER Balanced states to write items and tasks and review items for content alignment, accessibility, and bias. PARCC documents say that teachers will help shape the tests by serving on local committees reviewing test items. They will also be involved in developing model instructional units, diagnostic assessments, professional-development modules, and other PARCC resources.

In September, SMARTER Balanced issued a solicitation for development of guidelines for accessibility and accommodations for English learners and students with disabilities. PARCC plans such a solicitation this year, as well as requests for work on other parts of its testing system, such as its early-year diagnostic assessments and tests of speaking and listening skills.

PARCC has contracted with the Dana Center at the University of Texas at Austin to build prototype assessment tasks in math, and with the University of Pittsburgh’s Institute for Learning to generate such items in literacy. Those items are slated for release this summer.
U.S. Common-Standards Effort Informed by Ideas From Abroad

By Catherine Gewertz

In crafting a set of learning goals that nearly every state in the nation has embraced, the architects of the common-core standards effort sought to import from abroad key lessons about what top-performing countries teach their students.

To distill and articulate those goals, the common-core writers tried to balance the rigor, coherency, and focus they saw in the standards of high-achieving countries—and U.S. states—with the American tradition of respecting states’ and districts’ freedom to choose what they teach. All but four states have adopted the standards, taking the United States closer than ever before to having one shared set of academic expectations.

The standards, in mathematics and English/language arts, have their patrons and their detractors. Some see them as an admirably rigorous blueprint for the demands of work and college, while others argue that they ask too little, or too much, of students. Arguments persist about whether the standards—and common tests being designed with federal funds—will dictate curriculum and whether they reflect the right lessons from around the globe.

The organizations that propelled the Common Core State Standards Initiative, which represent governors and state schools chiefs, aimed to make the standards comparable to those of high-performing countries. Whether they succeeded is still being debated. But the common standards represent a major U.S. endeavor to learn from abroad.

“The common-core effort is a great example of leveraging lessons from other countries,” says Andreas Schleicher, who oversees analysis of education indicators at the Organization for Economic Cooperation and Development, the Paris-based group that administers the Program for International Student Assessment, or PISA, and analyzes its results. “It’s about trying to understand what drives the success of other systems and adapting that to your own national context.”

The lead standards writers examined other countries’ standards or curricula, as well as international comparisons done by researchers, the Washington-based policy group Achieve, and by the groups that administer such tests as PISA; the Progress in International Reading Literacy Study, or PIRLS; and the Trends in International Mathematics and Science Study, or TIMSS. They also drew on lessons from home, studying states with widely respected standards in one or both subjects, and research that reflects the skills and knowledge employers and higher education faculty find lacking in young people, from building solid arguments and working in teams to using math to solve real-world problems.

**Blending Models**

The math team started with an established knowledge base built by researchers such as Michigan State University’s William H. Schmidt, showing that American math standards covered more topics, in less depth, than did those of international high-performers such as Singapore, Hong Kong, and South Korea, and repeated topics year after year.

According to William G. McCallum, a University of Arizona math professor who co-led the writing of the math standards, the writers drew on math standards from those countries and others, including Australia, Canada, Finland, Japan, and New Zealand, and states such as California, Florida, Massachusetts, and Minnesota.

Chief among their goals was to craft standards that concentrated deeply on a few key concepts at each grade level and progressed from grade to grade in a logical way that reflected how mathematical knowledge builds, McCallum says.

In elementary school, for instance, the standards in high-performing Asian countries emphasize measurement, geometry, and number and operations, de-emphasizing concepts that would distract from that focus, such as collecting data and using it to build charts and graphs, he says.

Instead of topic strands that include every topic at every grade level, the standards writers created domains that span a limited number of grades, such as fractions for grades 3 to 5.

“The message is that you’re done with this in grade 5, and you’re moving on to the next thing,” McCallum says. “Rather than broad strands that go all the way through and sample everything, never quite bringing anything to completion, you focus on given things at given times.”

The writers also sought to synthesize thinking, internationally and at home, about the habits of mind students must acquire to be proficient in math. The “mathematical practices” section includes such skills as “attending to precision,” applying math to everyday problems, and critiquing others’ math arguments.

A particularly thorny area of the standards was algebra, McCallum says. The writers found that countries took varied approaches to the timing of content typically associated with an Algebra 1 course, he says. They “had to look at what was ambitious but also possible,” in consultation with states whose experts were collaborating on the standards, according to McCallum.

Although a few states, such as California, want all 8th graders to take Algebra 1, the writers decided to “strike a balance,” crafting guidelines that “get into serious algebra in 8th grade,” without requiring classic Algebra 1 elements such as quadratic equations, he says.

That choice, among others, stoked an argument that the common standards don’t meet international or university-preparation levels.

“It’s absolutely a mistake not to require all of Algebra 1 [content] in 8th grade. They’ve got very little of Algebra 2 in there,” says R. James Milgram, a professor emeritus of math at Stanford University. He served on the common standards’ validation committee, but refused to approve them, in part because in his judgment they did not meet their own stated criteria of being “comparable to the expectations of other leading nations.”

“In most high-performing countries, calculus is a high school graduation requirement,” Milgram says. “It’s almost a joke to think students [who master the common standards] would be ready for math at a university,” much less an elite one such as Stanford, where calculus is “considered remedial.”

In crafting the English/language arts stan-
Global Readings

Nations vary widely in the selection of reading and other language arts material that finds a home in the curriculum. In some cases, these are required texts; others show up on lists of recommended titles; and still others are offered as examples of literature that can satisfy academic standards and curricula.

In Ontario, Canada, J.D. Salinger’s *The Catcher in the Rye* is on the list of approved readings for grade 11 English classes.

New South Wales, Australia, requires 9th graders to read “The Lady of Shalott,” by Alfred Lord Tennyson, a poem based on Arthurian legend, and at least one work by William Shakespeare.

In Hong Kong, students taking the English-literature section of a required secondary school exam must pick from an eclectic basket of selections, ranging from Shakespeare’s “Othello” and short stories by James Joyce and Edith Wharton to the iconic 1974 Hollywood film “Chinatown” and poems by Sylvia Plath and Langston Hughes.

In England, required reading for the national English-literature exam taken by many 16-year-olds includes *Of Mice and Men*, by John Steinbeck; *To Kill A Mockingbird*, by Harper Lee; and *Lord of the Flies*, by William Golding.

Seeking ‘Takeaways’

Joanne Eresh, a Pittsburgh-based consultant, helped lead the international comparison work on the literacy standards. Along with colleagues in math, she had begun the comparison work several years earlier at Achieve, which works through its American Diploma Project to upgrade states’ academic standards. The comparisons expanded under the common-standards initiative when Achieve began playing a central role in that project.

In literacy, Eresh found that many higher-performing countries place a greater emphasis on listening and speaking skills and on students’ ability to build arguments from evidence. Those emphases dovetailed with U.S. surveys of employers and college faculty, who find students weak at skills such as making oral presentations and writing persuasive, well-founded essays, she says.

As a result, the common standards zero in on students’ ability to draw evidence from text and use it to mount arguments. They define sets of speaking and listening skills, such as “propelling conversations by posing and responding to questions that probe reasoning and evidence.”

Another lesson from abroad, Eresh says, was the level of demand in the books recommended in countries’ standards or required in their curricula.

“They more often were books that are far less

In the United States, students in states that have adopted the Common Core State Standards are required to read the *Declaration of Independence*, the preamble to the U.S. Constitution, the Bill of Rights, and President Abraham Lincoln’s second inaugural address. Readings suggested for 11th or 12th grade include *As I Lay Dying*, by William Faulkner; *The Tipping Point*, by Malcolm Gladwell; and “A Raisin in the Sun,” by Lorraine Hansberry.
straightforward, with symbolism, or that juggle multiple plots, than what students read at a given grade level here,” she says. A “staircase” of increasing text complexity was built into the common standards.

Some countries—like some U.S. states—create detailed lists of recommended readings. In countries that administer a national gateway exam that carries high stakes for students, such as England, where the “A-level” exams influence college admission, “recommended” readings can unofficially become “required” readings if they are widely known to appear on the test, Eresh says.

**’Exemplar Texts’**

The common-standards writers built a list of “exemplar” texts that illustrate the range and types of reading students should do to master the literacy skills in the standards, says Susan Pimentel, one of the team’s lead writers. Only four texts are required reading in the standards: the Declaration of Independence, the preamble to the U.S. Constitution, the Bill of Rights, and Lincoln’s second inaugural address.

“The idea of putting together a required reading list for the nation is just a nonstarter,” Pimentel says. “We talked with the states to see how they felt about it. And they weren’t interested.”

There is no nationally mandated exam in U.S. schools, but two groups of states are in the early stages of designing voluntary, shared assessments for the common standards. Once those are in use, in about three years, every state in each consortium—more than 20 are currently in each—would use the same assessment. Many are keeping close tabs on the development of those tests, since they are likely to wield considerable power over what is taught.

A host of questions have been raised about the effort to import lessons from abroad when shaping U.S. standards.

Sandra Stotsky helped shape the highly regarded standards in Massachusetts, and, like Milgram, a fellow member of the validation committee, refused to endorse the standards’ international comparability. She notes that leaders of the common-standards initiative now describe them as being “informed by” other countries, not “benchmarked” to those nations’ standards.

“Benchmarking” means you use a set of agreed-upon criteria for judging something,” says Stotsky, a professor of education at the University of Arkansas, in Fayetteville. “To be ‘informed’ by other countries’ standards means simply that they were read. Some other countries are light years ahead of what the common standards require for college readiness.”

Dane Linn, the director of the education division of the National Governors Association, which spearheaded the common-standards initiative with the Council of Chief State School Officers, says the international-comparison work was not a search for a “one-to-one match” between U.S. and foreign standards, but a blend of “multiple models,” including key ideas from other countries’ standards, as well as important takeaways from research and U.S. states’ standards.

**Systemic View**

What’s taught in schools is important, many experts say, but all parts of a country’s education system, including teacher training, assessment, and parental support, have to be harmonized to be effective.

“National standards could be right, but they’re not sufficient,” says Gary W. Phillips, who oversees large-scale assessment projects as a vice president at the Washington-based American Institutes of Research, and served on the advisory board for Quality Counts 2012. “You can look at high-performing countries’ standards, but it’s possible that some of the lowest-performing countries are doing some of what they’re doing, too. You have to look at an entire system, all of its elements. But none of it will work without the full commitment of an entire society to education.”

Grover J. Whitehurst, a senior fellow at the Brookings Institution, a Washington think tank, conducted a study that found that standards—the broad statements of academic goals—have no measurable impact on school improvement, but that curriculum—what’s taught week to week in classrooms—does. Still, no one has isolated the effect of either one on countries’ international-exam performance, says Whitehurst, a former director of the U.S. Department of Education’s research arm.

Phillips says he is examining many dimensions of countries’ education systems for their impact on performance on international exams. But he has found that simply having a national curriculum bears no relationship to performance.

Transforming academic standards into curriculum can take differing forms from country to country, but most high-performing ones leave schools and teachers considerable discretion in determining curriculum and accompanying materials, says Schleicher of the OECD.

Some set academic expectations at the national level, and others leave that work to states. What’s common to top-achieving countries, Schleicher says, is that their academic expectations are clear, high, and shared, and they are connected to “a deliberate chain of policies and practices” that ensure they are reflected throughout the system.

Finland, widely known for its rigorous, nationally set expectations, states those goals in spare terms at the national level, leaving its highly trained teachers to decide how to complete the picture. In Canada, which often ranks high on international exams, each province exerts control over its standards, curriculum, and tests, but the provinces’ chief education officers work together through the Council of Ministers of Education, Canada, to examine education data and discuss academic expectations, says Andrew Parkin, the director general of the council.

**Finland, Canada**

Australia, even though it scores high on international tests, chose to move from a decentralized to a national approach on curriculum and assessment. Its national exams are now in their third year, and states and territories are adapting their curricula to them, says Ben Jensen, the director of the school education program of the Grattan Institute, a think tank in Victoria. A national curriculum is being phased in.

“We went in this direction to get some national consistency, because there is so much variation [in academic outcomes] from state to state,” he says.

However hotly debated, the U.S. common standards now represent the academic goals of nearly every state in the country. But a long road lies ahead to translate them into curriculum and instruction.

Because of popular opposition to one mandatory curriculum, as well as legal restrictions on the role of the U.S. government in curriculum, the outcome is likely to feature a marketplace of curricula and instructional materials crafted by private-sector developers, philanthropically backed groups, federally financed state consortia, and states and school districts. And that scenario has prompted some to question how well such a range of materials will reflect the standards they are designed to embody.

Whitehurst, of the Brookings Institution, says that difficult tradeoffs are involved when managing the alignment of standards and curriculum.

“The more opportunities you have for leaks in the bucket between the standards at the national level and what teachers are doing in the classroom, the less likely you are to find any effect” of those standards on learning, he says. “Having 15 curriculum choices is good from an innovation and choice perspective, but there will be less alignment between the standards and what's being taught.”

Coverage of “deeper learning” that will prepare students with the skills and knowledge needed to succeed in a rapidly changing world is supported in part by a grant from the William and Flora
Experts Criticize Piecemeal Teaching of Social and Behavioral Sciences

By Sarah D. Sparks
Washington

As the majority of states implement common-core content standards, some experts are arguing that the focus on mathematics and language arts leaves out the social and economic studies that can help students connect content to their daily lives.

Researchers at a National Research Council forum on social sciences in Washington last month suggested that the expansion of testing in math and reading under the No Child Left Behind Act has led to a piecemeal approach to teaching social and behavioral science subjects in the states. While all but four states have adopted the common-core standards in mathematics and language arts and the NRC has proposed a framework for voluntary national science standards, social and behavioral sciences have failed to gain a significant presence in either set of guidance, despite protests last year from the field.

“No Child Left Behind frankly left us behind, and the common core gave us a footnote,” said S.G. Grant, the education dean at Binghamton University in Binghamton, N.Y.

The discussion caps a year of dismal news on the social studies front for U.S. students: National Assessment of Educational Progress reports out this year found mostly mediocre performance for students in geography, civics, and history.

The NRC meeting was intended to help policymakers and school officials discuss ways to use social and behavioral studies to tie together content in the common core. The forum mirrors a separate conversation launched last May by state school chiefs over the development of social studies standards, but experts at the NRC forum argued that social sciences should not be taught only within a stand-alone subject course.

“It is the integration of sciences, not the separation, that moves science forward,” said Martha Zaslow, the policy and communications director for the Society for Research in Child Development, in Washington, arguing that schools should begin teaching students from the elementary grades on up to use an “integrated approach” to content.

Incorporating perspectives from social sciences can help students connect otherwise-separated core subjects, like reading and science, to the interdisciplinary uses of those lessons in real life, according to Mr. Grant.

Making It Real

“I can’t think of a social problem that has a disciplinary focus,” Mr. Grant said. “What social problem has only a political solution, or for which only history can give a lens on? The value of the social sciences is in the ways we can...
think about social problems through multiple lenses.”

In a study released at the forum and commissioned by the National Academy of Sciences, of which the NRC is a part, researchers at the University of Michigan, working with the Consortium for Policy Research in Education, analyze the social and behavioral studies—including anthropology, economics, geography, history, political science, psychology, and sociology—in states’ K-12 content standards from 2007 to 2010. The study looks at content standards from eight states: Delaware, Idaho, Indiana, Kansas, Minnesota, Ohio, Oregon, and Wisconsin.

Co-authors Diane Massell, a senior research associate at the consortium, and Carol A. Barnes, an assistant research scientist, found that states gave the most attention to political science, economics, and geography. But “there was a lot of variation in what was given attention and where,” Ms. Massell said. “The standards don’t have legs on their own—they’re not going to walk into a classroom and be used.”

For example, history topics made up nearly a third of all state social studies standards, and anthropology popped up sporadically across states, but sociology and psychology content was “almost negligible” in all but Idaho’s standards.

Accountability is even more sporadic for social studies topics, researchers found. For example, 21 states now require an economics course for high school graduation, up from only 13 in 1998, but only 19 states require students to be tested in the subject, down from 25 in 1998, according to William D. Bosshardt, a senior adviser for program development at the Council for Economic Education, based in New York City.

Opportunity Gap?

Experts voiced concern that the lack of time spent on social and behavioral topics in the main curriculum may be creating opportunity gaps for students planning to take honors courses in high school. The University of Michigan study analyzed the nearly 600,000 Advanced Placement exams taken in Massachusetts, Michigan, Texas, and Virginia in 2010 and found 25 percent to 40 percent of all exams were in the social- and behavioral-science fields, from psychology to micro- and macroeconomics—suggesting students interested in advanced coursework need more preparation early on in social-science content.

Moreover, even if students have access to social and behavioral courses, they may not be schooled in the skills they need to succeed in that work. In the University of Michigan’s analysis of K-3 and 9-12 standards in Delaware and Minnesota, the researchers found more than 60 percent of elementary content standards in social and behavioral topics and more than a third of those at the high school level required only basic skills of memorization and information processing. By contrast, less than 3 percent of high school standards in those fields and less than 1 percent of elementary content standards required students to synthesize, evaluate, and make connections among concepts—the most advanced cognitive skills.

Shirley M. Malcom, the director of education and human-resources programs at the American Association for the Advancement of Science, in Washington, said prior attempts to boost social-science topics in the curriculum have failed because teachers and administrators already have too much to cover in a given year. “If you took every standard and stacked them up, they’d end up being thigh-high,” she said.

Ms. Massell of the research consortium agreed. “States are already struggling to coently and coherently add content” to comply with common-core standards, she said. “We need to consider integration in nontraditional subjects.”

Felice J. Levine, the executive director of the American Educational Research Association, in Washington, also agreed. She noted that schools could use basic psychology instruction, for example, to help students reflect on day-to-day issues such as bullying or social networking. “It is how we develop a deeper and richer curriculum,” she said.

“It is the integration of sciences, not the separation, that moves science forward.”

MARTHA ZASLOW
Policy and Communications Director,
Society for Research in Child Development
A Flawed Approach to Reading in the Common-Core Standards

By Joanne Yatvin

In reading the recently proposed Common Core State Standards already accepted by all but three states, I could not see many elementary school children of any background or ability meeting the standards at the grades designated. In my view, as a former elementary teacher and principal, the standards overestimate the intellectual, physiological, and emotional development of young children, asking them to think analytically as they read or write, extract subtle meanings from a text, and make fine distinctions within and across texts. Such deliberative and intensive behaviors are not supported by the research on child development, nor are they expected anywhere else in children’s lives today.

Not long afterward, I read the accompanying document “Publishers’ Criteria for the Common Core State Standards in English Language Arts and Literacy,” prepared by the standards’ primary authors, David Coleman and Susan Pimentel, and became truly alarmed. In these instructions to curriculum developers and publishers of classroom materials, I saw not only a misreading of children’s capabilities, but also the intent to redefine the purpose of K-12 education and to control its curriculum and methods.

The criteria document is divided into two sections; the first directed toward materials for grades K-2 and the second toward grades 3-12. Since it was impossible for me to separate out what was applicable to the elementary grades in the second section, I gave my primary attention to the first. Most of the quotations below come from the K-2 section, while a few later in the essay are from the introduction to the 3-12 section.

In the introduction to the criteria for grades K-2, the authors make clear that they are proposing a radical revision of the primary-grades curriculum. Here are some telling quotes:

In kindergarten-grade 2, the most notable shifts in the standards when compared to state standards include a focus on reading informational text and building a coherent knowledge within and across grades; a more in-depth approach to vocabulary development; and a requirement that students encounter sufficiently complex text through reading, writing, listening, and speaking.

By underscoring what matters most in the standards, the criteria illustrate what shifts must take place in the next generation of curricula, including paring away elements that distract from or are at odds with the Common Core State Standards.

This is a pretty strong dose of academia for children just beginning their schooling, with not even a “spoonful of sugar to make the medicine go down.” Most disturbing in these quotes, however, is the authors’ demand that any content or skill not specified in the standards be excluded from the school curriculum.

For teaching reading in grades K-2, the criteria show a bias toward a particular philosophical approach that lays out a mechanical and linear pathway to reading competence:

Materials that are aligned to the standards should provide explicit and systematic instruction and diagnostic support in concepts of print, phonological awareness, phonics, vocabulary development, and fluency.

By the end of 2nd grade, a key goal should be that students are able to read independently with automaticity and flow to ensure that their focus can be freed for comprehension.

Not only is this approach to reading more limited than what most experts recommend, it also excludes any early emphasis on understanding what one reads. Inexplicably, and in contradiction to research, the quotes imply that comprehension comes automatically and only after a child has mastered the mechanics of reading.

The criteria also insist on a focus on academic vocabulary and a way of teaching it that is, again, out of line with research and observations of young children’s development.

Of particular importance is building students’ academic vocabulary or Tier 2 words.

It follows, then, that materials should require students to think about words: how and why specific words are used, how changing one word can change the meaning of text, how one word can have varied but related meanings based on context, and why another word might be more appropriate.
For young children, the focus on academic vocabulary seems strange. At this time in their development, would it not be more sensible for children to learn words connected to their everyday lives and their interests rather than to things and experiences as yet unknown? Even stranger is the second quote that prescribes analytic thinking and word knowledge beyond the developmental level of children in grades K-2.

Next, the criteria reinforce the major curriculum feature in the standards: a significant increase in nonfiction materials at all grade levels.

The standards call for elementary curriculum materials to be recalibrated to reflect a mix of 50 percent literary and 50 percent informational text, including reading in [English/ language arts], science, social studies, and the arts.

Apparently, the authors deem such a shift in curriculum content necessary for students to reach the goal of college and career readiness. But are their expectations for classroom practice realistic? The fact that fiction now dominates the elementary curriculum is not the result of educators’ decisions about what is best for children, but a reflection of children’s developmental stages, their interests, and their limited experience in the fields of science, geography, history, and technology. It is one thing for a child to read *The Little Engine That Could* for the pleasure of the story and quite another for her to comprehend the inner workings of a locomotive.

Reading any text requires more than decoding, fluency, and inferring meaning from context; the reader must form mental images of things mentioned based on previous experience or imagination. Although illustrations in many nonfiction books help considerably, there is a limit to how many unfamiliar things can be adequately illustrated in a book for young children.

Ultimately, the authors show their contempt for teachers’ competence, the use of supplementary materials, and children’s experiences. In the first two quotes below—taken from the criteria for grades 3-12—and the third quote—taken from the K-2 document—this becomes apparent.

*The criteria make plain that developing students’ prowess at drawing knowledge from the text itself is the point of teaching; teaching is not a substitute for the text.*

It is one thing for a child to read *The Little Engine That Could* for the pleasure of the story and quite another for her to comprehend the inner workings of a locomotive.’

Joanne Yatvin is a retired public school educator, a past president of the National Council of Teachers of English, and a former member of the National Reading Panel. She now conducts independent research in high-poverty schools.
The Common-Core Math Standards: They Don’t Add Up

By Grant Wiggins

There is little question in my mind that national standards will be a blessing. The crazy quilt of district and state standards will become more rational, student mobility will stop causing needless learning hardships, and the full talents of a nation of innovators will be released to develop a vast array of products and services at a scale that permits even small vendors to compete to widen the field to all educators’ benefit.

That said, we are faced with a terrible situation in mathematics. In my view, unlike the English/language arts standards, the mathematics components of the Common Core State Standards Initiative are a bitter disappointment. In terms of their limited vision of math education, the pedestrian framework chosen to organize the standards, and the incoherent nature of the standards for mathematical practice in particular, I don’t see how these take us forward in any way. They unwittingly reinforce the very errors in math curriculum, instruction, and assessment that produced the current crisis.

Let’s start with the vision. The goal of mathematics education is clear enough: We want students to be able to solve nonroutine and worthy mathematical (or math-related) problems, not just handle simple, discrete, and dull exercises; and we want students to learn to like doing math, see its value in it, and therefore develop greater persistence and skill in handling mathematical challenges. Yet, there is not one word in the standards document about building curricula backward from rich, nonroutine, interesting, and authentic problems. As Sol Garfunkel and David Mumford recently noted in a widely read New York Times opinion piece: “This highly abstract curriculum is simply not the best way to prepare a vast majority of high school students for life.”

A look at the National Assessment of Educational Progress, or NAEP; the Trends in International Mathematics and Science Study, or TIMSS; and state test results shows that our students are woefully deficient in solving any problems that require a transfer of learning, as opposed to the plug and chug of simple rules and algorithms. And nothing in the new standards will change this sorry state of affairs.

I am astonished that there is not one mention in the document of the difference between real and pseudo-problems. Have the writers of this document not been in classrooms or looked at mainstream curricular materials? As it stands now, few students encounter real problems, i.e., puzzling and atypical challenges that require clever approaches and solutions—real thought. The long-standing weaknesses in math curricula and instruction will be abetted, not solved, by these standards.

There are no valid intellectual principles undergirding the document. Many “standards” address picayune topics. Why weren’t the big ideas of mathematics highlighted in the standards themselves, as the draft science standards from the National Research Council do? A few years ago, Randy Charles wrote a detailed set of big ideas in math for the National Council of Supervisors of Mathematics. Why weren’t they or their equivalent highlighted? Why weren’t goals for complex transfers of knowledge emphasized? Why weren’t model problems linked to essential questions referenced?

Yes, the authors identified the practice standards; they are a start, but they are set apart from dozens of pages of content standards, and none of the assessment or instructional examples in the content standards show you how to combine practice and content. (In a just-released report by David Conley, the math practice standards were more highly rated by college teachers than the content standards. A common complaint was that “general problem-solving skills are not emphasized enough.”)

Worse, the math practice standards are incoherent and not sufficiently thought through, as one can see from the standards language quoted below:

“Make sense of problems and persevere in solving them. Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution.”

The entire narrative underneath this standard involve various heuristic moves, but not a complete set. And as noted, there is no discussion of what a genuine problem is.

“Reason abstractly and quantitatively. Mathematically proficient students make sense of quantities and their relationships in problem situations.”

How is this a “practice standard”? This is a truism. This describes what anyone working in mathematics must always be doing: working with abstractions.

“Model with mathematics. Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace.”

This phrasing bogs the key question: How will students learn to model with mathematics if they aren’t provided with ambiguous and confusing situations that demand models and in which different models have pros and cons? The average myopic teacher will simply see this as saying: Please plug in the “right” model. Nothing in the standard prohibits this.

“Use appropriate tools strategically. Mathematically proficient students consider the available tools when solving a mathematical problem.”

What does “strategically” mean in this context? Why isn’t it simply “tactical” or
“intelligent”? This is a missed opportunity to underscore the importance of confronting students with messy and non-well-defined problems that require them to make such decisions (especially since students will typically have few tools from which to choose).

“Attend to precision. Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning.”

This is arguably the most poorly thought-through of all the practice standards. Why does the primary reason for “attend[ing] to precision” focus on communicating to others? Why don’t the demands of mathematics require a student to worry about significant figures, margin of error, and precise calculations?

“Look for and make use of structure. Mathematically proficient students look closely to discern a pattern or structure,” and

“Look for and express regularity in repeated reasoning. Mathematically proficient students notice if calculations are repeated, and look both for general methods and shortcuts.”

In the last two standards, we are given two narrowly phrased pieces of advice of completely different scale and scope. And is this all there is to say about how to solve problems? What about something as vital as “Turn unfamiliar into familiar via equivalence”? What about the series of questions that the famed scholar George Pólya taught so many to use for solving all kinds of problems? This is random counsel.

Missing entirely from the practice standards is a discussion of how to pose problems, and, more generally, how to ask powerful questions. This is a telling oversight. Unlike in school, real problems are not served up on a platter, fully formed. The standards-writers overlooked the most basic fact of people with genuine math expertise: They find problems!

The English/language arts standards were released with a rich and elegant framework of anchor standards; no such framework exists here. The ELA standards also provided samples of assessment and anchor texts. This is a glaring omission on the part of the math-standards writers. One would think that the authors would have worked overtime to provide educators with samples of model tasks, as well as a long list of do’s and don’t’s about how to address the standards.

Is it too late to change this? I hope not. Solving our problem of poor mathematics education depends upon it.

Grant Wiggins is the president of Authentic Education, a nonprofit organization based in Hopewell, N.J., that provides consulting and professional-development training to schools. He is the co-author, with Jay McTighe, of “Understanding by Design,” a program and materials on curriculum design, and of “Schooling by Design.” He is the author of Educative Assessment and Assessing Student Performance, both published by Jossey-Bass, in 1998 and 1999, respectively.
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http://www.nap.edu/catalog.php?record_id=13165
National Research Council, July 2011

Oregon Department of Education: Common Core State Standards Toolkit, ELA & Literacy Teachers
http://www.ode.state.or.us/search/page?id=3424

Partnership for Assessment of Readiness for College and Careers (PARCC)
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