

B



©Laughing Stock/Corbis

beyond the Core:

Assessing Authentic 21st Century Skills

Laura Greenstein

Well-designed assessments can determine students' progress on academic measures and on the skills necessary to apply that knowledge in future endeavors.

Prin cipals' wheelbarrows are full of initiatives: closing learning gaps, preparing for the Common Core State Standards, differentiating instruction, and improving college and career readiness, to name a few. Meanwhile, principals have too few assets in their toolboxes to meet all the hefty demands. Taking the long view, it becomes clear that true reform requires preparing students for a complex, globally connected future that cannot yet be envisioned.

The Common Core outlines what a good foundation in literacy and numeracy looks like. Any well-built structure needs this type of solid foundation, but it is the bridges and buildings that are built on it that provide the pathways and scaffolds for success. Moving beyond the Common Core means moving beyond standardized tests. It means moving toward the skills that current kindergarteners will need when they become leaders as adults.

The Common Core and Beyond

The framers of the Common Core (2010) claim that “the standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that our young people need for success in college and careers” (p. 1). “College and career readiness” has become part of the national dialogue, but there are wide variations in defining what that means. ACT (2011) defines it as “the acquisition of the knowledge and skills a student needs to enroll and succeed in credit-bearing courses at a postsecondary institution” (p. 3). To others, it means possessing 21st century skills—such as creativity, digital literacy, and technology expertise—or personal traits—such as work ethics, planning skills, and flexibility.

The authors of the Common Core (2010) agree that “while literacy is critical to college and career readiness, there is much more complexity than the standards can address” (p. 6). The reality is that students must develop a complex skill set that prepares them for both the rigor of college and the demands of the workplace. They must master substance and skills in multiple content areas. The idea that schools should focus on more than just the basics has been widely accepted, but the imperative to ensure that they do so is stronger than ever.

Drivers and Directions

The world is changing, and many trends and forces are driving significant changes in education:

- Increasing complexity of the workplace coupled with a reduction in jobs that rely on routine tasks (Murnane & Levy, 2004)
- The rapid increase in Hispanic, Asian, and Black students means that schools do not have the same student demographics as they had in the past (Mather, Pollard, & Jacobsen, 2011)

Figure 1

Standards-Based Progression

Common Core	21st Century Skills	Instructional Strategy/ Learning Outcome	Alternative/Authentic Assessment
Determine central ideas of a text	Collaborating on learning the content; applied technologies	Create a tour guide of your state	Checklist for content knowledge; rubric for presentation
Integrate and evaluate information from multiple sources	Analyzing global population data	Track population data using the "7 billionth person" and "gap minder"	Graph the change; produce a webinar or narrative advising about population trends
Delineate and evaluate the argument and specific claims in a text: cite textual evidence	Solving real-world problems	Host a global forum on genetic engineering	Assess use of research to support solutions

- The amount of information is doubling faster than ever and the half-life of knowledge is increasing (Lyman & Varian, 2003)
 - Employers increasingly want employees who can collaborate, communicate, create, and solve problems at a global level (Jerald, n.d.).
- There are also promising opportunities for preparing students for success now and in the future:
- Engaging students in authentic learning opportunities
 - Extending the Common Core standards into the 21st century
 - Boosting assessments to include higher-order thinking and real-world applications
 - Using technology as a tool to support 21st century learning and assessment
 - Amplifying teacher's skills in using multiple strategies to assess learning.

Teaching for the 21st Century

In 21st century classrooms, students plan their learning, work collaboratively, and self-assess their mastery. Projects, portfolios, products, and demonstrations of learning are the norm with content mastery embedded in them. For example, students may prove their math skills by designing a playground; their social studies knowledge by promoting awareness

of local historical landmarks; and their math, science, and social studies expertise by hosting a hunger awareness event. Those examples are activities that not only are built on Common Core foundations but also extend learning beyond the Common Core academic standards.

Many ideas for engaging students in projects and problem-based learning are readily available to teachers. The greater challenge lies in assessing these types of activities. Until large-scale metrics are developed, teachers must be equipped with a cache of methods for assessing the performances and products of learning. This model begins with a progression of the Common Core into the 21st century.

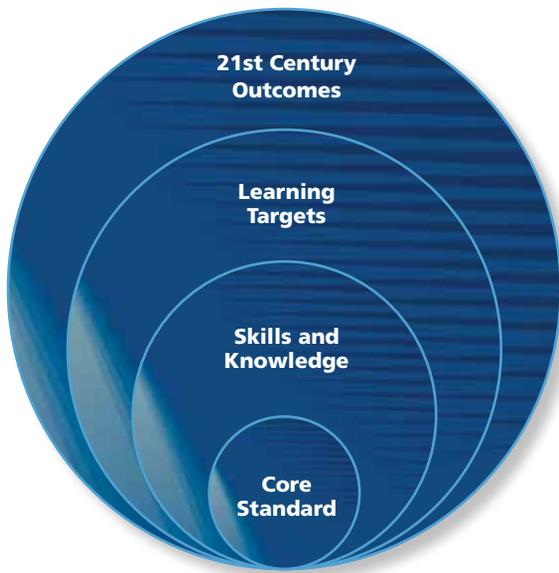
Another model for extending core learning into the 21st century is with a "wrapper" that surrounds an existing Common Core learning target and extends the learning to well into the 21st century.

Assessment in the 21st Century

As districts, schools, and teachers move forward with comprehensive models of 21st century learning, the assessment of student learning must also move forward. Quality indicators of assessment are no different for rubrics, checklists, and learning logs than they are for selected multiple choice and completion items: assessments must be transparent, flexible and responsive to learners' needs, informative, and integrated with teaching and learning. The technical aspects of grading, however, are more challenging when the skills are more complex. It is relatively easy to validate a completion question about content knowledge; it is more difficult to assess a

Figure 2

21st Century Learning Wrapper



21st century: problem solving in relation to proportion of income spent at different income levels; collaboration with each person in the group who represents different family members; metacognition about what drives decision making

Learning target: prepare a budget

Skill and knowledge: determine what proportion each major category represents

Core standard: analyze proportional relationships and use them to solve real-world problems

Figure 3

Rubric for Problem Solving

Skill/ Knowledge	4. Expert	3. Capable	2. Apprentice	1. Greenhorn	Score
Identifies the problem	I clearly described the problem in relation to the situation and included several supporting details.	I described the basics of the problem with some details and supporting information.	I explained some of the problem but had trouble understanding all the elements of the problem.	I had difficulty recognizing and defining the problem.	
Describes solutions	I came up with at least four feasible, clearly explained solutions.	I offered two or three plausible solutions.	I described one or two possible solutions.	I had one solution but I'm not sure it was right.	
Defends solution	I analyzed all the solutions and picked one that shows my understanding of the problem and the outcomes.	I evaluated the solutions and picked one that seems feasible.	I gave a simple explanation for the one choice that I thought made sense.	I wasn't able to explain my solution.	

Source: Greenstein, L. (2012). Assessing 21st century skills. Thousand Oaks, CA: Corwin. Adapted from the rubric on p. 201.

Figure 4

Rubric for Collaboration

Skill/ Knowledge	Exemplary	Proficient	Basic	Novice	Score/ Weight
Works Productively	We used all our time efficiently to stay focused on the task and produce the required work.	We worked together well and for the most part stayed on task until we completed our work.	We worked together sometimes, but not everyone contributed or did their jobs, making it hard to finish our work.	We didn't work together very well. Everyone wanted to do their own thing and tell others what to do, rather than focus on the task.	
Demonstrates Respect	Everyone respectfully listened and discussed ideas that were shared.	Members listened and interacted respectfully most of the time.	Some people had difficulty being respectful of others' ideas.	Members were unwilling to listen to others and were argumentative with teammates.	
Shared Responsibility Everyone Contributes	Everyone did their best work and followed through on assigned tasks.	Most people followed through on their parts.	It was hard to get everyone to do their parts.	We really couldn't depend on everyone to do their parts.	

Source: Greenstein, L. (2012). *Assessing 21st century skills*. Thousand Oaks, CA: Corwin. Adapted from the rubric on p. 206.

student's creativity or his or her solution to an environmental problem.

For example, a test question that asks students to define immunization and a question that asks them to defend their positions on mandatory immunizations for children require different skill sets and assessments. The first question, given as a multiple choice item, is easily scored and provides information on one learning target. The second question includes the ability to read and interpret data, support a position, and communicate that perspective to others. But it can be done.

RUBRICS

Effective rubrics align with standards and learning outcomes and clearly describe achievement at multiple levels. (See figures 3 and 4 for examples of rubrics for assessing the 21st century skills of problem solving and global understanding.)

CHECKLISTS, CONTRACTS, REFLECTIONS

Other tools for assessing complex learning include checklists, learning contracts, learning logs, and self- or peer assessment. Those tools

are most effective when they align with objectives and targets. They help teachers assess students' outcomes—such as presentations, personal responsibility, and metacognition—that can't be measured by standardized tests. Teachers can use those tools to hold learners accountable for specific learning targets and also allow for differentiation as they blend the Common Core with 21st century learning. (See figures 5, 6, and 7 for examples.)

Next Steps

No one would argue that an assessment of higher-level thinking is more nuanced than a test that asks only multiple-choice questions. Although the idea of balanced assessment systems has been around for decades, it seems that education in the United States has taken an even stronger turn to large-scale, high-stakes standardized tests. It is in the classroom that the gradations of learning occur, and it is up to teachers to realize the potential of alternative types of assessments. Teachers need to believe and see that their school and district leaders are supportive of this path. Principals are the ones who guide, support, and lead the transition from the Common Core into the 21st century. When what is valued and what is measured are the same, then schools are more likely to get the results they want.

To make the transition to 21st century assessments, schools must:

Figure 5

Checklist

Checklist for a Presentation	Comments
+ if performance is superior in quality √ if performance is satisfactory according to the standard NI if performance Needs Improvement based on the standard	
____ Introduction captures the attention of the audience	
____ Purpose is stated in the introduction	
____ Content is clear and understandable	
____ Presentation is logically sequenced	
____ Projects voice so all can hear	
____ Uses technology to support message	
____ Summary synthesizes main ideas	

Figure 6

Learning Contract

Student _____ Teacher _____ Date _____	Topic/Learning Target _____ _____ _____
Contract: Targets and Responsibilities	Evidence, Descriptions, Questions
How I will show my learning (e.g., learning log, report, PowerPoint presentation, or demonstration)	
Student's responsibilities	
Teacher's responsibilities	
Resources needed (people, technology, etc.)	
Sequence, due dates, and deadlines	
How I will present my work	
How it will be assessed	
Signatures: Student _____ Teacher _____ Parent _____	

Figure 7

Work Ethics Reflection

Components of Good Work Ethics	How I showed my work ethics; include specific actions you took, tasks you completed, how you worked with others, etc.
Accountability: <ul style="list-style-type: none"> ■ Punctual ■ Prepared ■ Organized ■ Works with effort and care 	
Participation: <ul style="list-style-type: none"> ■ Engaged in learning ■ Productively involved in the class ■ Makes a meaningful contribution 	
Individual and Teamwork: <ul style="list-style-type: none"> ■ Accepts and acts on feedback ■ Values the work of others ■ Seeks to include everyone's ideas ■ Helps the group achieve its goals 	

- Start with a powerful vision of the principles: the purposes and the processes of education
- Develop policy that is designed to meet the needs of the whole child
- Design school missions that traverse 20th and 21st century skills
- Build consensus on 21st century skills and knowledge
- Create a 21st century school climate
- Cultivate 21st century leaders who can adjust the sails for tomorrow's journey
- Commit to balanced assessment built on multiple measures for multiple purposes
- Expand professional development opportunities
- Prepare aligned and focused curricula
- Encourage a comprehensive integrated framework for teaching and learning
- Pursue intentional and purposeful instruction
- Value visible thinking, not just correct answers
- Develop the psychometrics to support divergent responses
- Plan forward, not just for the moment, but all the moments of the future.
Think about how you want to describe your students when they are 30 years old. Start

there and track backwards. For many reasons, it is time to take these important steps: for students, who will be leaders in the future; to advance the global educational outlook; and to ensure that all learners are prepared for their future. As Alvin Toffler said "The illiterate of the 21st century will not be those who cannot read or write, but those who cannot learn, unlearn, and relearn." **PL**

REFERENCES

- ACT. (2011). *The condition of college and career readiness, 2011*. Retrieved from www.act.org/research/policymakers/cccr11/pdf/ConditionofCollegeandCareerReadiness2011.pdf
- Jerald, C. D. (n.d.). *Defining a 21st century education: At a glance*. Retrieved from Center for Public Education website: www.centerforpubliceducation.org/Learn-About/21st-Century
- Lyman, P., & Varian, H. (2003). *How much information?* Retrieved from www2.sims.berkeley.edu/research/projects/how-much-info-2003
- Mather, M., Pollard, K., & Jacobsen, L. A., (2011). *Reports on America: First results from the 2010 census*. Washington, DC: Population Reference Bureau.
- Murnane, R., & Levy, F. (2004). *New division of labor*. Princeton, NJ: Princeton University Press.
- Population Reference Bureau. (2010). *Yearbook of immigration statistics*. <http://uscis.gov/graphics/shared/statistic/yearbook/2005/table02.xls>

Laura Greenstein (lauragteacher@hotmail.com) has over 30 years in education as a teacher, a school leader, an adjunct professor, and a school board member. She is the author of *Assessing 21st Century Skills* (Corwin, 2012) and *What Teachers Really Need to Know About Formative Assessment* (ASCD, 2010).