K-12 Computer Science

Civics Education in Illinois and Florida

Assessing Social and Emotional Learning

Low-Performing Schools

Teacher Evaluation
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DAVID VON DREHLE is an editor-at-large for Time magazine. His cover stories have ranged from Supreme Court decisions on health care and same-sex marriage to the death of Osama bin Laden and the rise of ISIS, and the 2016 presidential election is the eighth he has covered as a journalist. Previously, he was a senior writer and assistant managing editor at the Washington Post, and he is the author of four books, including Rise to Greatness: Abraham Lincoln and America’s Most Perilous Year and Triangle: The Fire That Changed America, which the New York Times called “social history at its best.”
Teacher Evaluation
ESSA provides fresh impetus to amend recently minted teacher evaluation systems or revise them altogether. Matthew P. Steinberg

Civic Education
Florida and Illinois light on strategies to ensure that students receive high-quality civic learning that transcends the classroom. Kei Kawashima-Ginsberg

Assessing Social and Emotional Learning
States that support students’ development of a holistic set of skills may see benefits across a wide range of student outcomes. Samuel H. Rikoon, Meghan W. Brenneman, and Kevin T. Petway II

K-12 Computer Science Instruction
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Low-Performing Schools
States must find their own way to addressing low-performing schools, with only a few guideposts from research to date. Dan Aladjem

Personalized Learning for Students with Disabilities
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Virtual reality technology may be on the cusp of widespread adoption in K-12 settings. Amelia Vance

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National Association of State Boards of Education

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In flipping through the pages of an issue boldly themed “The Future of Schools,” the reader may wonder whether NASBE and its assembled authors have attempted to predict that future. We don’t. Instead, the authors invite you to imagine a range of possible futures that state policymakers who ask important “what if” questions can help to shape.

Some of these futures have been inspired by the Every Student Succeeds Act. States now have greater latitude in designing systems for teacher evaluation and in addressing low-performing schools. In his piece on teacher evaluation, Matthew Steinberg walks you through key questions policymakers and administrators will have to weigh as they build multiple-measure evaluations. Dan Aladjem reviews the literature on the effect of federal funding for school improvement and concludes that there are some general principles to guide states as they address turnaround but no surefire recipe for success.

Other “what-if” questions deal with standards, which fall squarely in the court of most state boards of education. We don’t need a crystal ball to project that many more states will soon be adopting computer science standards to address the shortfall between industry workforce needs and students with the skills to take those high-paying jobs. So what will it mean for your state’s students if your board decides to be an early adopter? Gene Bottoms and Kirsten Sundell of the Southern Regional Education Board review what states have been doing to prepare qualified teachers and to lay the groundwork for state standards.

What if your board is concerned about whether its students are ready to be engaged citizens? Does it want to adopt or revise its civic education standards? Kei Kawashima-Ginsberg addresses what some states have already done to craft standards that go beyond learning about the branches of government and toward building skills in civic participation.

What about standards for social and emotional learning? This hot topic inspired a good bit of discussion this year, with some states considering adding it to the mix of potential measures of school quality. Samuel H. Rikoon, Meghan W. Brenneman, and Kevin T. Petway II from the Educational Testing Service make the case for focusing on SEL and assessing it, even if it seems premature to include it on the state’s dashboard.

What if your state is excited about the potential of new technology to broaden the scope and reach of instruction? Amelia Vance looks at the early promise of virtual learning.

What if your state wants to move the needle on improving outcomes for students with disabilities? iNACOL’s Maria Worthen describes how a personalized learning approach can help these students in particular, even as it helps all students. Underpinning all of these what-if questions is our shared desire to ensure that all students have the opportunities to enter their futures with confidence. Can they all advocate for themselves and their communities, or are only the privileged few able to do so? Do they all have opportunities to prepare for good careers? Can they acquire the social skills and emotional intelligence to navigate life? Schools cannot bring about all these good things by themselves. Yet some are trying. This issue is about nothing if not engaging the imagination of students, parents, teachers, administrators, legislators—and yes, state boards of education. What if?
In mid-July, the US Department of Education released a Notice of Proposed Rulemaking regarding the Every Student Succeeds Act’s general assessment provisions and a second Notice of Proposed Rulemaking on the law’s innovative assessment pilot program. The proposed general assessment regulations reflect the work of the negotiated rulemaking committee, which ESSA required and ED convened earlier this year. Under the proposed rule on the pilots, states that apply commit to developing high-quality, valid, reliable assessments that “measure student mastery of challenging State academic standards, improve the design and delivery of large-scale assessments, and better inform classroom instruction.” Public comments to both rules were due by September 9. At a July meeting for new NASBE members, ED adviser Anne Hyslop said ED hoped to release final rules by the end of 2016.

Education Secretary John King announced nonbinding guidance in July to raise “awareness, enthusiasm and support” for a more “well-rounded” education for all students. The guidance focuses on identifying strategies and funding sources for an education that includes access to history, civics, government, economics, and geography; music and art; world languages; physics, chemistry, computer science, and biology; physical and health education; and career and technical education.

On July 7, the House Education and the Workforce Committee unanimously approved legislation to update the Perkins Career and Technical Education Act, which would provide state and local leaders more flexibility in the use of federal CTE funds, streamline performance measures, and push for stronger engagement with employers in the development and evaluation of CTE. The Senate Health, Education, Labor, and Pensions Committee has not yet considered a companion bill, so it is unlikely Congress will complete work on reauthorization until next year.

Few states have adopted learning standards in computer sciences, but that is likely to change as states increasingly recognize standards and aligned teacher preparation as critical to eliminating the shortage of US students capable of entering the field. A new NASBE Policy Update by Eve Tilley-Coulson, “States Move toward Computer Science Standards,” details multistate efforts to advance K-12 computer science instruction.

The House Appropriations Committee approved a bill for ED’s fiscal 2017 budget in late July that would reduce the department’s overall budget by $1.3 billion. But in a significant victory for schools, the measure provides $1 billion for the Student Support and Academic Enrichment Grant (SSAEG). The bill decreases funding for Title II, which supports school leader and teacher professional development, including for effective use of technology. The Senate Appropriations Committee acted on companion legislation in late June, reducing the budget by $220 million overall but providing only $300 million for SSAEG (see table). Congress will not take further action until after the election, when education spending will likely be considered as part of a larger omnibus bill.

### House and Senate Appropriations Proposed FY17 Education Investments

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<tr>
<th>Program</th>
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<tr>
<td>ESEA, Title I</td>
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The Every Student Succeeds Act (ESSA) requires state education agencies to file their state implementation plans in “timely and meaningful consultation with stakeholders.” Done well, stakeholder engagement draws in parents, educators, students, civil rights groups, community organizations, local and state policymakers, the business community, and more. States that come to this work from a place of compliance will miss the chance to build lasting public support with those who come to education policymaking from a place of passion.

Many states have already begun this important work. Colorado embarked on a listening tour to gather ideas and support for the design of the state’s ESSA strategy. New York created a “think tank” of teachers, administrators, professional associations, higher education representatives, and business leaders to come up with a statewide accountability plan. Wyoming set up ways for stakeholders to submit comments online and is hosting virtual town hall meetings.

Not every state is as prepared. Early findings from a new NASBE analysis of ESSA stakeholder engagement (due out this fall) suggest that while many states say they seek feedback, they fall short on true engagement. They provide opportunities for input but expect stakeholders to stumble onto the means to give it. The support of parents and teachers, and even savvy civil rights groups, isn’t easily won by creating an online portal and hoping for the best.

Meaningful stakeholder engagement needn’t be difficult. But it must be authentic, inclusive, actionable, and ongoing. Consider three strategies right out of the gate:

1. Listen as much as you talk. States may be holding town hall meetings and “listening tours” around ESSA implementation, but are they truly hearing what stakeholders have to say? In 2015, the Kansas State Board of Education set a vision for the state’s education system where “Kansas leads the world in the success of each student.” They did so with the input of over 2,000 Kansans from many groups, and the state board continues to draw on it to inform tough policy decisions.

2. Relationships matter. Lyndon Johnson once said that “the time to make friends is before you need them.” State boards of education should heed President Johnson’s wise words by identifying potential allies early on and seeking common ground with interest groups that will be harder to win over. Cultivating such relationships will be vital to building support for important policy decisions, especially those likely to be controversial.

3. Good policies lead to better policymaking. When the Virginia State Board of Education introduced its “Profile of a Graduate” to define the content knowledge, workplace skills, community engagement, and career pathways students need for postsecondary success, it did so with the expectation that this profile would inform policy decisions around diploma types, accountability systems, and competency-based programs. Earlier this year, the Virginia legislature enacted enabling legislation with near unanimous bipartisan support, and Governor Terry McAuliffe signed it into law. This important step will be critical in building support for the state’s ESSA plans.

ESSA offers states greater authority over important decisions that could propel improved outcomes for all students. But to be successful, state policymakers can’t go it alone; they need a little help from their friends—and their not-yet friends. So take the time to cultivate and “meaningfully engage” now.
Perhaps the US Department of Education had President Jefferson’s exhortation in mind when it recently reminded the education community about the requirement that all students, regardless of sex or gender, have “equal access to the full range of” career and technical education (CTE) programs. The department designated this reminder—in the form of a “Dear Colleague” letter dated June 15, 2016, and jointly issued by the Office of Career, Technical and Adult Education and the Office for Civil Rights—as significant guidance.

The department issued the guidance to clarify the obligations under civil rights laws for recipients and subrecipients of federal financial assistance. The letter identifies some historical barriers to equal access to CTE programs, including implicit bias (social stereotypes), ambient bias (a classroom’s symbolic features), and sex stereotyping. Acknowledging that disproportionate gender enrollment alone is not a violation of law, the letter nonetheless urges proactive efforts to increase participation of the underrepresented gender in programs that lead to “high skill, high wage, and high demand jobs.”

The letter provides examples of hypothetical violations of the law, and it recommends remedies in areas such as recruitment and promotional activities, access to classes, and counseling. It encourages expansion of outreach activities, additional training for school staff, and revision of admissions policies. It examines and explains the need to be aware of and protect against exclusion based on marital and parental status. And it addresses the increased potential for sex-based harassment of students whose gender makes up a small minority of those enrolled in particular areas of study.

Perhaps not coincidentally, a bill to reauthorize the Carl D. Perkins Career and Technical Education Act of 2006 was introduced in the US House of Representatives in late June 2016. Entitled the Strengthening Career and Technical Education for the 21st Century Act, the bill includes clarification of what programs need to offer to qualify for funding, proposes adding homeless students and youth with a parent on active duty in the armed forces to the “special populations” definition, and revises performance indicators. The bill emphasizes an expectation of rigorous content aligned with academic standards and the delivery of career skills.

To address gender equity, it proposes as one measure of performance participation that leads to employment in fields that are nontraditional for the gender of the students.

This renewed focus on gender equity in CTE is one facet of the future of schools. Districts and schools will be concentrating on the expected high-growth fields in tomorrow’s economies, such as nursing and cybersecurity. This focus on gender equity in CTE anticipates both the expectation and realization of the goal; the result should be superior, prestigious achievement based on open and fair opportunity for all. Thomas Jefferson would approve and applaud the realization of this dream.
The Future of Teacher Evaluation

Passage of the Every Student Succeeds Act (ESSA) in December 2015 signaled a new era for teacher evaluation reform. Under ESSA, states and districts have greater autonomy to design and implement teacher evaluation systems independent of federal influence. This new flexibility brings with it new responsibilities and challenges for states and districts as they consider ways to improve their current teacher evaluation systems—which teacher performance measures to choose, how to weight them, how to combine them, and where to set the rating thresholds that determine teacher effectiveness.

In this article, I identify these key challenges and opportunities and pose a series of questions for policymakers and school leaders to consider as they undertake revisions to their existing evaluation systems. These queries should inform state and district leaders on the issues involved in redesigning teacher evaluation systems and the potential consequences of their decisions.

Recent Revisions to Teacher Evaluation

Between the 2009–10 and 2015–16 school years, 88 percent of states and 89 percent of the largest 25 districts and the District of Columbia redesigned and implemented new teacher evaluation systems. These systems incorporated multiple measures of teacher performance—most prominently, student test-score data as value-added measures (VAMs) and more rigorous (and more frequent) classroom observation of teacher practice. The use of student test-score data and classroom observations was largely standardized in response to the demands of the Race to the Top (RTTT) federal grant program and No Child Left Behind state waivers, which required states and districts to use multiple measures of teacher performance (and multiple teacher ratings categories) in an effort to better identify and differentiate teacher effectiveness.

As state and district policymakers consider further revisions and potentially systematic changes to these new evaluation systems, key issues must be addressed:

- Which measures of teacher performance should be used to measure overall teacher effectiveness?
- What weight should be assigned to each teacher performance measure?
- How should a teacher's summative evaluation score be constructed from multiple teacher performance measures?
- How should a teacher's summative evaluation rating be determined, including the number of rating categories and percentage of points necessary (i.e., the rating threshold) for a teacher to earn a particular summative evaluation rating?

There are two important considerations implicit in these decisions. First, does a district have the human capital necessary to implement, for example, rigorous observations of classroom practice for all teachers, including in-class observation and pre- and post-observation conferences between teachers and their evaluators? Second, to what extent do different measures of teacher performance inform the underlying goals of teacher evaluation: providing teachers and school leaders with information to improve teacher instructional practice and differentiating teacher effectiveness for the purposes of high-stakes teacher personnel decisions (i.e., retention, promotion, dismissal)?

While a growing body of evidence-based research can guide state and district policymakers’ decisions, designing teacher evaluation systems also entails numerous value judgments and often a high degree of statistical and technical sophistication.

Several recent studies have found that state education agencies (SEAs) have limited technical expertise, which has
Reliability and Validity

As with any measure of performance, policymakers must be aware that measures of teacher effectiveness may be subject to reliability and validity concerns. Reliability relates to a performance measure’s variability; validity relates to a measure’s accuracy. For example, significant variability in a measure of individual teacher effectiveness—either from class to class or year to year—reflects a relatively unreliable (i.e., inconsistent) assessment of teacher effectiveness. A measure that provides inaccurate information about an individual teacher’s effectiveness—due to, for example, the nonrandom ways in which students are assigned to a teacher’s classroom or the nonrandom sorting of teachers across schools—reflects a relatively invalid (i.e., biased) assessment of teacher effectiveness. A number of empirical studies of teacher evaluation systems have examined the reliability and validity of measures of teacher effectiveness, including VAMs, classroom observation scores, and student surveys.

While concerns about the reliability and validity of teacher performance measures have been widely acknowledged in both academic and policy research, this should not mean that evaluation systems abandon these measures entirely. Instead, policymakers should consider ways to incorporate multiple measures of teacher performance into teacher evaluation ratings and, where necessary, make adjustments to these scores to reflect the fact that teachers and students are not randomly distributed across schools and classrooms.

What Measures of Teacher Effectiveness Should You Use?

Current teacher evaluation systems comprise one or more measures of teacher effectiveness, with each capturing a dimension of teacher performance. State and district administrators should consider the efficacy of each measure in identifying teacher effectiveness (to serve the accountability function of teacher evaluation), its ability to drive instructional improvement, and its fiscal and human capital requirements for full implementation.

Classroom Observation

Observations of teacher instruction are designed to provide formative feedback that teachers can use to improve their instructional practice as well as to carefully evaluate instructional performance. The observation process, in addition to the classroom observations themselves, often includes pre- and post-observation conferences between the teacher and the observer. Evidence suggests that rigorous classroom observation can be an effective means of improving student performance. Of the states and 25 largest districts that have implemented reforms since 2009, all have incorporated more rigorous, standards-based classroom observations into their summative teacher evaluation ratings.

What observation rubric will you use? Of the many observation rubrics available, the Danielson Framework for Teaching (FFT) has been the most widely adopted in newly implemented teacher evaluation systems. While the FFT has been shown to provide a complementary measure of teacher effectiveness (along with value-added measures, or VAM, and student surveys), the FFT by itself is limited in its ability to identify effective teachers. Further, there is growing evidence that measures of teacher observation may be subject to reliability and validity concerns.


practice based on observation rubrics such as the FFT may be biased by the incoming achievement of a teacher’s students. That is, teachers’ observation scores tend to be higher when their students enter class having performed better on state standardized assessments in the preceding academic year.7 Other popular observation rubrics are the Classroom Assessment Scoring System (CLASS) and, for English language arts instruction, the Protocol for Language Arts Teaching Observations (PLATO). In addition to selecting a rubric, system designers must decide whether to use the full protocol or a subset of the protocol’s domains.

**How many observations will you conduct?**

Administrators need to decide on the number of formal and informal classroom observations for both beginning (i.e., teachers in their first three years in the classroom) and career teachers. Of the states and largest districts that have implemented reforms since 2009, the largest districts conduct more observations than do states. The largest districts require, on average, 5.5 formal and informal observations for beginning teachers and 4.5 for career teachers. States require, on average, 4 observations for both beginning and career teachers. In addition to requiring more observations per teacher, districts are also more likely to require postobservation conferences between teachers and observers; this aspect of teacher observation can be crucial to teacher improvement.8

**Who is responsible for conducting classroom observations and rating teacher performance?**

Will this task fall primarily to the principal, assistant principal, and/or a master teacher? Will evaluators receive the training necessary to conduct rigorous classroom observation?

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**46 States Have Newly Redesigned Teacher Evaluation Systems Since 2011**

Source: Map data based on Figure 2 in M. Steinberg and M. Donaldson, “The New Educational Accountability: Understanding the Landscape of Teacher Evaluation in the Post-NCLB Era,” Education Finance and Policy 11, no. 3 (2016).

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found substantial year-to-year variability in teachers’ individual VAM scores depending on the nature of the student assessment being used. While some have argued that this variability calls into question the ability of VAMs to identify effective teachers, others have found that students taught by higher-VAM teachers have better long-term educational and labor market outcomes.

Do your districts have the technical capacity to develop VAMs? Constructing these measures requires statistical and technical sophistication. Administrators must assess whether they have the technical capacity to build and use these measures. In the absence of such capacity, external resources (such as university researchers and policy research organizations) increasingly support states and districts in constructing VAM scores for their teachers.

Student Learning Objectives

SLOs provide measures of student growth in grades and subjects that state accountability exams do not cover. Growth is measured based on subject- and grade-specific learning goals established either by state or national standards or by objectives that teachers or districts establish. Teachers are evaluated based on the percentage of students in their classes who meet these goals. Fifty-two percent of states and 39 percent of the largest districts that have implemented reforms since 2009 use SLOs in their teacher evaluation systems.

What assessments will you use? A student’s progress toward meeting SLOs may be evaluated using locally developed assessments or off-the-shelf tests. Districts must select SLOs for each grade and subject that the state’s accountability exam does not test. Further, the extent to which teachers and school leaders are involved in selecting the assessments incorporated into SLOs is an important consideration when designing evaluation systems.

Student Surveys

Student surveys measure teacher performance based on students’ perceptions. Seventeen percent of both states and the largest districts use student surveys as part of their teacher evaluation systems.
Notably, schoolwide achievement may have little—if anything—to do with a nontested teacher’s individual performance and may therefore have important consequences for teacher retention. For example, economically disadvantaged schools may find it more difficult to retain high-performing teachers who teach in nontested grades/subjects, especially since a significant portion of their summative evaluation scores depend on the performance of students they do not teach. As a result, the ratings for highly effective, nontested teachers in large urban districts may reflect much poorer quality instruction than their own and may lead these teachers to look for teaching opportunities in higher-performing schools and districts.20

Calculating a Teacher’s Summative Performance Score

When used in combination, classroom observations, VAMs, and student surveys are better able to identify and differentiate teacher effectiveness.21 As administrators reassess their teacher evaluation systems in light of the greater flexibility ESSA provides, they will want to consider how the overall teacher performance score is created from individual performance measures.

What nominal weights should you assign to each measure? Teacher evaluation systems may assign any feasible set of weights to the performance measures incorporated into a teacher’s evaluation, as long as the weights sum to 100 percent. However, these weights play a critical role in determining the proportion of teachers deemed to be professionally proficient. For example, when zero percent of a teacher’s summative evaluation score depends on classroom observations, the share of teachers deemed proficient (based on simulation analyses across eight large urban districts) ranges from 2 percent to 47 percent. In contrast, when 100 percent of a teacher’s summative evaluation score is based on classroom observations, the share of teachers deemed proficient ranges from 27 percent to 94 percent.22 Notably, despite the public attention on using student test-score data to evaluate teacher performance, student achievement measures (i.e., VAM scores and student growth percentiles) play a limited role.
How do you want to treat teachers who have different measures available to them? Do you want to incorporate (and weight) different teacher performance measures—such as SLOs and schoolwide achievement data—into the summative evaluation score for teachers who do not have individual VAM scores? Doing so poses its own set of questions, such as how to make comparisons across teachers if different measures are contributing to their final evaluation score. And the greater reliance on schoolwide achievement data means that a larger share of a teacher’s score will be based on the achievement of students with whom she has little or no instructional contact.

Translating Individual Scores into Ratings

Translating a teacher’s summative performance score into a summative evaluation rating for the purposes of comparing teachers and making high-stakes personnel decisions requires some important decisions. Until recently, there has been little evidence to inform policymakers about how such design decisions determine the distribution of teacher ratings and the proportion of teachers deemed professionally proficient. This lack of guidance is problematic, particularly as these summative ratings are increasingly used to inform personnel decisions. A simulation-based analysis that I recently conducted with Matthew Kraft produced some estimates that can help to answer the following questions.24

How will you differentiate teacher ratings?

In other words, what thresholds will you use to sort teachers into categories of effectiveness? Following the federal RTTT directives, states and districts incorporate multiple categories. In most systems, absolute thresholds are used to determine a teacher’s summative evaluation rating. A teacher is placed into one of multiple (often four) rating categories based on the percentage of total evaluation points he or she earns. In evaluation systems that use absolute thresholds, all teachers may be rated in the highest category; such a system has limited ability to differentiate teacher effectiveness. Other districts impose a distribution of teacher effectiveness. In such a norm-referenced approach, the district assigns summative evaluation ratings to teachers based on a desired distribution of teacher effectiveness. For example, Dallas Independent School District assigns 40 percent of teachers to receive one of the lowest two ratings (Unsatisfactory or Progressing) and 60 percent of teachers to receive one of the highest two ratings (Proficient or Exemplary).25

Notably, among systems that use absolute thresholds, there is wide variation in the share of evaluation points a teacher must earn in order to be rated in one of the top two rating categories for which teachers are considered professionally proficient. As a result, the proportion of teachers deemed professionally proficient depends critically on where districts and states set thresholds. For example, a teacher who earns 60 percent of all possible summative evaluation points would receive the lowest possible rating in New York City; the second-lowest rating in Chicago, Denver, and Miami-Dade; but a proficient rating in Clark County, Fairfax County, Gwinnett County, and Philadelphia.26

Some Final Considerations

Do you want to account for contextual factors that influence teachers’ scores? In most systems, an overwhelming majority of teacher summative scores are based on classroom observations. But teachers who are assigned lower performing students receive lower observation scores, independent of the teachers’ ability or underlying effectiveness.27 To what extent might your evaluation system account for the contextual factors that bias measures of teacher performance? Such choices will affect cross-teacher comparisons. System designers must carefully consider whether the type of statistical adjustments used in the construction of VAMs should be used with measures of teacher performance based on classroom observation scores.

What effect will your decisions have on teacher motivation? State and district administrators must keep in mind how the selection of measures used to evaluate performance might motivate or discourage teachers. Will disproportionally weighting VAMs and SLOs
The Future of Civic Education

Presidential elections provide unparalleled opportunities to broaden students’ civic engagement. Especially this year, young people have pressed candidates to attend to issues they care about. Primary turnout figures indicated high youth voter engagement—potentially a good sign for America’s future civic health, which is characterized by citizens participating in civic and political life and caring for community and each other. A democracy’s leaders will only be accountable if its citizens are willing to hold them accountable.

Studies show that civic health is a key factor in a community’s economic health. Consequently, the K-12 civic education...

Florida and Illinois light on strategies to ensure that all students in their charge receive high-quality civic learning that transcends the social studies classroom.

by Kei Kawashima-Ginsberg
that all citizens receive is essential to ensuring a prosperous democratic society.

But here’s a challenge. While voting is an important indicator of civic engagement, voter turnout by itself is not a great benchmark of civic health. In fact, higher average turnout can mask widening civic disparities. Voter turnout among youth varied drastically by education, income, race/ethnicity, and gender in 2012 (see figure). For example, four of every five young, black, college-educated high-income single women voted. Only one in five young Latina women without high school degrees did the same. And one in seven young, white, low-income women with less than high school education voted.

One way to combat the persistent large civic participation gap is to provide high-quality civic education to all K-12 students. But what does the term civic education mean in the K-12 setting? Broadly, civic education includes any and all processes that prepare members of a community for civic life. K-12 civic education today is largely centered in social studies courses and supported by other disciplines and out-of-classroom learning opportunities.

Ideally, K-12 civic education would fully prepare young people to participate in myriad aspects of civic life: voting, volunteering, deliberating on issues, and advocating for a cause, for starters. Acquiring these skills begins with a solid grasp of foundational knowledge. But it also requires students to experience civic engagement through experiential learning—service learning, community-engaged research, and nonpartisan electoral activities—that facilitate and encourage real-life civic participation. Young people have always needed knowledge, skills, and dispositions to make informed, ethical decisions. This era of political gridlock, negative campaign ads, and personal attacks on candidates only underscores that need.

In my view, civic education is incomplete if it is measured only by acquisition of rote knowledge about the Constitution and the founding of the country, as some states have recently started to do by requiring high school students to pass the US Citizenship and Immigration Service Naturalization Test. Civic education that promotes civic engagement goes further—helping all students develop a sense of efficacy and civic duty. And because K-12 schools

Figure 1. Turnout Varies by Group Among Youth

Civic Education Beyond Social Studies Class

While the importance of classroom instruction in civics could never be overstated, civic learning ought to be part of every discipline and most school activities. This becomes possible when schools and teachers view civic education not just as acquisition of factual information about the nation’s founding principles and government structures but as how students experience and practice democracy in their daily lives.

What will civic learning look like in a science class or in a cafeteria? It’s perhaps not so much what students do as how they learn to frame what they are learning. For example, science projects strengthen students’ grasp of scientific principles and how to carry out scientific inquiries. When civic learning is infused into a science course, students may also engage in dialogues about the potential public purpose of these science projects and how decisions about scientific innovations must encompass a host of external factors. In a cafeteria, students can engage in lively discussions about which healthy meal options should be available and how to make collective decisions that account for multiple perspectives.

High-Quality Civic Education Works

High-quality civic education not only prepares children for the most basic civic participation—voting and understanding how powers are divided—but also helps them acquire broader skills, such as deliberating with fellow citizens to make difficult decisions that affect their communities, advocating for themselves and others on matters of public relevance, and understanding how they can contribute to collective civic health.

Strong civic education has long-term consequences. When we asked young adults what kinds of civic education practices they were exposed to in high school, we found that the more they were exposed to best practices, the more likely they were to be engaged in voting and community service. A large study of Chicago public school students found that having good “civic learning opportunities” increased adolescents’ commitment to civic engagement. A number of studies have found benefits from discussion of controversial issues in classrooms and participation in extracurricular groups.

High-quality civic education also appears to contribute to students’ college and career readiness. A rigorous study found that students who were exposed to service learning were more likely to go to college than those who did not. Furthermore, when done well, civic learning promotes exactly the skills that employers want in the modern labor market, such as collaboration, communication, and critical thinking.

Scaling Up Best Practices for All Students

The verdict is clear on what effective civic education practices can do, and there have always been examples of excellence, even in less-than-ideal conditions. Yet in most cases, students in underresourced schools do not experience these excellent practices.

CIRCLE, a Tufts University–based nonpartisan think tank that promotes equitable civic learning and engagement through research and capacity building, convened a cross-disciplinary panel of experts, practitioners, and policymakers in 2012. The panel deliberated on ways to improve US civic education, taking into account survey and interview data, as well as policy scans. Three major recommendations emerged from the resulting report of the Commission for Youth Civic Knowledge and Voting that are especially relevant here:

- State standards for civics should call for advanced civic skills “such as deliberation and collaboration rather than memorizing facts.”
### Table 1. Illinois Learning Standards for Social Science, Grades 9-12

#### INQUIRY SKILLS

**Developing Questions and Planning Inquiries**

- **Constructing Essential Questions**
  - SS.IS.1.9-12: Address essential questions that reflect an enduring issue in the field.

- **Constructing Supporting Questions**
  - SS.IS.2.9-12: Explain how supporting questions contribute to an inquiry.

- **Determining Helpful Sources**
  - SS.IS.3.9-12: Develop new supporting and essential questions through investigations, collaboration, and using diverse sources.

#### Evaluating Sources and Using Evidence

- **Gathering and Evaluating Sources**
  - SS.IS.4.9-12: Gather and evaluate information from multiple sources while considering the origin, credibility, point of view, authority, structure, context, and corroborative value of the sources.

- **Developing Claims and Using Evidence**
  - SS.IS.5.9-12: Identify evidence that draws information from multiple sources to revise or strengthen claims.

#### Communicating Conclusions and Taking Informed Action

- **Critiquing Conclusions**
  - SS.IS.7.9-12: Articulate explanations and arguments to a targeted audience in diverse settings.

- **Taking Informed Action**
  - SS.IS.8.9-12: Use interdisciplinary lenses to analyze the causes and effects of and identify solutions to local, regional, or global concerns.
  - SS.IS.9.9-12: Use deliberative processes and apply democratic strategies and procedures to address local, regional, or global concerns and take action in or out of school.

### Table 2. Content Standards for Illinois Civics, Grades 9-12

#### CIVICS STANDARDS

**Civic and Political Institutions**

- SS.CV.1.9-12: Distinguish the rights, roles, powers, and responsibilities of individuals and institutions in the political system.
- SS.CV.2.9-12: Evaluate the opportunities and limitations of participation in elections, voting, and electoral process.
- SS.CV.3.9-12: Analyze the impact of constitutions, laws, and agreements on the maintenance of order, justice, equality and liberty.
- SS.CV.4.9-12: Explain how the US Constitution established a system of government that has powers, responsibilities, and limits that have changed over time and are still contested while promoting the common good and protecting rights.

**Participation and Deliberation: Applying Civic Virtues and Democratic Principles**

- SS.CV.5.9-12: Analyze the impact of personal interest and diverse perspectives on the application of civic dispositions, democratic principles, constitutional rights, and human rights.
- SS.CV.6.9-12: Describe how political parties, the media, and public interest groups both influence and reflect social and political interests.
- SS.CV.7.9-12: Describe the concepts and principles that are inherent to American Constitutional Democracy.

**Processes, Rules and Laws**

- SS.CV.8.9-12: Analyze how individuals use and challenge laws to address a variety of public issues.
- SS.CV.9.9-12: Evaluate public policies in terms of intended and unintended outcomes and related consequences.
- SS.CV.10.9-12: Explain the role of compromise and deliberation in the legislative process.

A full version of ILSBE Social Studies standards can be found at [http://www.isbe.state.il.us/ils/social_science/pdf/ss-stds-eff012716.pdf](http://www.isbe.state.il.us/ils/social_science/pdf/ss-stds-eff012716.pdf).
States and districts should enact policies that support teachers' inclusion of civic discussions.

Teachers should have access to “standards, curricular materials, and professional development that ensure students discuss the root causes of social problems when they participate in service-learning and ensure that student groups address social issues.”

These recommendations are deeply rooted in the recognition that civic education, above all else, must focus on making sure that all students receive high-quality civic learning experience. If K-12 schools do not succeed in instilling a sense of civic responsibility and developing skills to carry out those civic responsibilities in all students, the foundation of our democracy will be at peril.

There have been innovative civic education policy reforms in states such as Florida and Illinois. Leaders in each state developed locally relevant strategies for strengthening and equalizing civic learning.

**Florida’s K-12 Approach**

Florida passed the most ambitious civic education law to date in 2010—with strong backing from Senator Bob Graham, Congressman Lou Frey, and Justice Sandra Day O’Connor—to integrate civic learning throughout students’ educational careers. It begins in elementary English and language arts classes, is anchored by a required middle school civics course that culminates in a high-stakes exam, and is capped by experiential civic learning during high school. The middle-school civics exam scores count for 30 percent of the course grade and affect teacher evaluation and the school’s performance rating. The course and the exam are tightly aligned, and teachers are instructed to follow a strict pacing guide so they can cover all required standards.

The Justice Sandra Day O’Connor Civics Education Act connects elementary, middle, and high school civic education to ensure that students get the building blocks of civic participation at appropriate grade levels. Most recently, the Lou Frey Institute at the University of Central Florida created the Partnership for Civic Learning, which regularly convenes district leaders, policymakers, state education agency officials, and researchers to develop strategies, evaluate ongoing progress based on data, and troubleshoot challenges. The feedback loop of data and strategic adjustment involves state-level policymakers, university researchers, curriculum developers, and all 67 of Florida’s county-level school districts, among others. This mechanism allows for improvements in professional development, classroom strategies, and ultimately, student performance.

**Illinois Marries Standards and Outreach**

Illinois passed an ambitious civic education law, HB 4025, which Governor Bruce Rauner signed in August 2015. It mandates that high school students take a stand-alone civics course that requires them to meet content standards while also developing advanced civic skills such as deliberation. In January 2016, the Illinois State Board of Education revised the ninth through twelfth grade learning standards significantly, in keeping with the law’s intent.

The newly revised Social Studies Framework is modeled after a framework published by National Council of Social Studies in 2013. The Illinois standards provide guidance on core strategies and goals that courses in social studies disciplines should accomplish (table 1), followed by discipline-specific content standards (table 2). As illustrated in table 1, students’ learning begins with forming inquiries, developing claims with supporting evidence, and using that developed knowledge for real-world problem solving.

In teacher training sessions in two rural Illinois regions, I observed that teaching civics this way represents a paradigm shift for many teachers. That is why in-person regional training, a network of mentors and trainers, and support from regional offices of education that provide continuing education credits are essential for successful implementation of Illinois’s law. Practices that have been in place for years in affluent suburbs and Chicago, a district that has invested in civic learning, need to be extended to remote, low-resource schools, and Illinois’s approach addresses this need. And from what I witnessed, teachers welcome these new strategies.

“Communicating conclusions and taking informed action” is the element that makes teachers new to the framework the most anxious.
anxious: They wonder what “action” means and whether they have to arrange dozens of community service sites. Training helps allay this fear, as teachers learn many ways to address this dimension of learning. For example, teachers in the Illinois sessions learned how to use the 2016 election to engage students in finding root causes for familiar problems, understanding how decisions are made, and identifying and acting on solutions. In trying out the exercises themselves, the teachers were animated and eager to exchange ideas.

Led by the McCormick Foundation’s Shawn Healy and Mary Ellen Daneels, a master social studies teacher at West Chicago Community High School, an implementation team trained teacher mentors in key pedagogical strategies in June, and the mentors are to train and support other teachers throughout the year, working closely with 10 regional partners (regional offices of education, colleges, and universities) that will host in-service training.

How could such an ambitious law pass—and, even more surprisingly, get implemented fully—in a state struggling through an unprecedented budget crisis? As with any strong policy, Illinois’s new law is a product of 10 years of relationship and community building that helped bill designers carefully consider how a proposed law could be implemented successfully in any part of the state.

The effort began with a convening in 2006 of 80 local and national groups organized by the Constitutional Rights Foundation Chicago, which in 2009 produced “Blueprint for Civic Learning in Illinois High Schools” to guide schools that were committed to civic learning. The Illinois Civic Mission Coalition, which spearheaded efforts to pass the 2015 law, had an earlier success when the Civic Education Advancement Act was passed in 2007. That act codified an initiative called Illinois Democracy Schools, in which schools could be certified as providing schoolwide civic learning.

The McCormick Foundation now leads this initiative, a vibrant community of 41 schools that have gone through a rigorous assessment process of identifying and improving practices that demonstrate building-wide commitment to civic learning, not just in social studies class. Within each building, the Democracy School certification requires administrators’ strong support and commitment, as well as student and teacher collaboration. Once a school decides to seek Democracy School recognition, the full network of schools offers concrete advice and shares resources. In the most recent annual gathering of Illinois Democracy Schools, I witnessed firsthand how schools from communities with varied economic, demographic, and political characteristics come together around a shared mission of educating Illinois students for democracy.

In 2009, the Illinois state board of education issued a resolution endorsing the Illinois Civic Blueprint, and the same year then Governor Quinn issued a letter recognizing Democracy Schools. In 2011, the Illinois State Senate recognized and commended the existing Democracy Schools and resolved that each school district’s school report card indicate its Democracy School status. The Illinois Report Card began recognizing Democracy School status in 2014, and the state board announced that the Illinois Civic Mission Coalition would create and coordinate a task force charged with revising state social studies standards.

Beyond the legislative work and policy development, this 10-year effort in Illinois involved convincing one skeptic at a time and getting buy-in from unexpected places, including both Chicago daily newspapers, neighborhood associations, corporations, philanthropy, and the Chicago Teachers Union.

There are two important ways in which the Illinois approach to civic education reform should represent the future of all schools: 1) it frontloads equity, by ensuring that students in every corner of the state can get high-quality civic learning by training the trainers and creating regional hubs for support, and 2) through the required civics course and the Democracy Schools initiative, all Illinois students will be able to learn to participate and take informed action in everyday life.

Advancing Civic Education in Your State

Many of the changes in Illinois’s approach to civic learning would not have been possible without the close partnership of the coalition of citizen groups and the Illinois state board of education from the very early stages of this effort. Collaboration will be important for all
states in advancing education reform in this and every area. But the Illinois case, the Florida case, and the report of the Commission for Youth Civic Knowledge and Voting inspire some additional recommendations for state policymakers:

- Standards have the power to set the tone. The Illinois state board endorsed an ambitious civic learning agenda early on and communicated its commitment to high-quality civic learning by revising learning standards.

- When standards allow flexibility in how schools can express the underlying principles, they can come up with culturally relevant ways to design their civic learning experiences, and in some cases, students can do so.

- Strategies to support implementation must address inequity head on, build grassroots infrastructure through initial investments, and recognize and reward excellence.

Civic education of American children and youth has always been essential, but the value of deeper civic education cannot be overemphasized in the current political climate. Strong civic education develops young people’s capacity to grapple with contentious, possibly divisive, issues such as immigration reform and gun regulations in an informed, rigorous, yet civil manner. Education reforms that support strong civic education, accompanied by thoughtful implementation plans such as the one in Illinois, help realize the ideal of equity in access to high-quality education. Equity in access to strong civic education, among all subjects, is imperative because doing so not only affects individual “success” as citizens but also our nation’s civic health collectively. The future of civic health, therefore, goes hand in hand with equity in civic education, and it requires laws and resources to support that ideal.

- Strong civic education develops young people’s capacity to grapple with contentious, possibly divisive, issues in an informed, rigorous, yet civil manner.

5These opportunities were defined as a combination of “learning about problems in society, learning about current events, studying issues about which one cares, experiencing an open climate for classroom discussions of social and political topics, hearing from civic role models, learning about ways to improve the community, and working on service learning projects” (Joseph E. Kahne and Susan E. Spote, “Developing Citizens: The Impact of Civic Learning Opportunities on Students’ Commitment to Civic Participation,” American Educational Research Journal 45, no. 3 (2008): 738–66).
8For example, see Diana E. Hess, Controversy in the Classroom: The Democratic Power of Discussion (New York: Routledge, 2009).
9Commission for Youth Civic Knowledge and Voting, All Together Now: Collaboration and Innovation for Youth Engagement (Medford, MA: Center for Information and Research on Civic Learning and Engagement, 2013).
Social-emotional learning (SEL) attracted educators’ increased interest in 2016. National discussions have focused on the contributions to student success of associated personal characteristics such as “grit” and “growth mind-set,” but also on the potential for high-stakes decision making based on SEL or “noncognitive” assessment results. In part, passage of the Every Student Succeeds Act fueled this debate over SEL and accountability, as the law permits states to include measures of nonacademic areas such as student and teacher engagement in their accountability systems.

On one hand, this new flexibility was a welcome federal recognition of the contribution nonacademic factors make to student academic success. On the other, the validity of using assessments of these factors to inform high-stakes teacher- or school-level accountability decisions remains an open question in need of substantial further research.

The Case for Focusing on SEL

While basic proficiency in mathematics, reading, and writing is essential, educators and parents alike would more likely list characteristics like perseverance, self-control, creativity, time management, leadership, conscientiousness, and being an effective collaborator when considering what is most important for success in school, work, and life. These characteristics are often dubbed “social-emotional learning competencies,” “noncognitive skills,” “soft skills,” or “21st century skills” in the literature. A growing body of research has consistently demonstrated positive relationships between SEL competency levels and academic achievement, educational attainment, and success in the workforce. Not surprisingly, both employers and institutions of higher education highly value these types of skills.

In addition, survey research on which skill areas US public education systems should prioritize have consistently extended beyond basic academic skills to more noncognitive aspects such as social skills and work ethic, citizenship, preparation for skilled work, and emotional health. Key for state boards of education (SBEs), some school-based interventions have been shown to be effective in helping students develop such competencies.

Recent reports by nonprofit organizations distilling active lines of research have contributed to the widespread acceptance of the value of noncognitive skills to public education. These have also considered vital practical issues such as the extent to which noncognitive skills are susceptible to intervention, and mechanisms for their reliable and valid assessment. In particular, Farrington et al. (2012) provide three detailed case studies highlighting important transitional periods for students, two of which focus on K-12 environments. Their report summarizes the literature and recommends action based on what is known about how factors such as mindset and learning strategies in the middle grades and specific academic behaviors in ninth grade influence student success during each transition. Along similar lines and further connoting the field’s priority on noncognitive skills, the American Psychological Association’s Coalition for Psychology in Schools and Education recently released a “Top 20” list of guiding research-supported principles for preK-12 teaching and learning, the majority of which attend to noncognitive constructs including student motivation, task persistence, self-regulation, emotional well-being, and creativity.

During their formative years, children are naturally in the process of building and developing work habits and social skills while spending a substantial portion of their waking hours either in school or engaged in school-related work or extracurricular activities. Whether or not the idea has been explicitly codified in policy

Assessing Social-Emotional Learning

by Samuel H. Rikoon, Meghan W. Brenneman, and Kevin T. Petway II

States that support students’ development of a holistic set of skills may see benefits across a wide range of student outcomes.

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Educators are fundamentally in the business of guiding student character and emotional development as much as their cognitive and academic capabilities.

or standards SBEs have adopted, educators are fundamentally in the business of guiding student character and emotional development as much as their cognitive and academic capabilities.

The malleability of noncognitive skills across the early and adolescent lifespan is thus crucial in motivating SBE policy development geared toward measuring and encouraging acquisition of those skills. As noted above, skills such as motivation, resilience, emotional intelligence, and self-efficacy have been shown to be susceptible to school-based interventions. Given the established positive relationship between students’ effective expression of noncognitive skills and their academic achievement, SBEs taking steps to inspire cultures of holistic student development—versus remaining focused on purely academic subject matter—may see their efforts translated into narrowed achievement gaps between students in districts serving those from underrepresented or historically disadvantaged backgrounds and their more socioeconomically advantaged peers.

With the caveat of potential reference bias, it is also important to note that nationally representative data appear to show significant gaps in reported levels of noncognitive skills themselves between higher and lower socioeconomic status groups. This is not meant to suggest that a sudden focus by SBEs on fostering student noncognitive skills will independently resolve long-standing structural and societal problems inherent to underresourced school systems. However, it seems obvious to suggest that students enrolled in such systems could benefit from interventions to heighten their abilities to cope with, navigate, and persist through the challenges they encounter (academic or otherwise).

There is also evidence that states and districts may realize substantial economic benefits by supporting reforms or interventions aimed at improving students’ SEL skills. For example, statewide interventions to encourage prosocial behavior and cooperation in the early grades may result in both substantially increased labor market productivity and reduced costs to the state’s criminal justice system.

Having made a case for the vital nature of noncognitive skills development to future student outcomes, increased equity, and the potential for economic benefits accruing to states, the question naturally arises of exactly how SBEs might go about building a set of policies, standards, or guidelines to both evidence and enhance their support for a more holistic vision of student development. Fortunately, the major issues at play here parallel those with which SBEs are already familiar: 1) the utility of formally adopting state-level standards, 2) the importance of incorporating reliable and valid assessment tools to measure student progress, and 3) the appropriate use of SEL assessment results.

**State-Level Standards**

Although near universal at the preschool level, state adoption by states of freestanding K-12 standards targeting noncognitive skills remains a work in progress. Illinois and Kansas have been at the forefront of such work. The leading authority on SEL and standards is the Collaborative for Academic, Social, and Emotional Learning (CASEL). At work for over 20 years, CASEL has produced both research and supportive resources organized around five areas of social and emotional competency: self-management, self-awareness, responsible decision making, relationship skills, and social awareness. CASEL also offers a bank of materials for state-level policymakers. As of October 2015, CASEL reported that only four states had adopted “comprehensive standards for SEL with developmental benchmarks [spanning] K-12.” Another eleven had some SEL standards in place, though these were often limited to the early grades (e.g., K-3). Recent SEL policy developments at the state level have been encouraging, however, with eight more states committing to work together to develop SEL standards, according to an August 2016 article in *Education Week*.

Just as with the Common Core State Standards and similar state academic standards for mathematics and English language arts, SEL standards must be appropriately detailed in their specification and backed by sufficient professional expertise and supportive materials—benchmarks, curricula, teacher professional development—to imbue them with credibility and support their successful implementation. One cost-effective way for an SBE to begin the process of developing such standards would be to review CASEL’s resources and adopt a model state’s SEL standards either whole cloth or with revision. A complementary strategy would be for SBEs and
A diverse array of assessment techniques can be used for targeting noncognitive skills.
enable the efficient deployment and study of innovative methods for measuring and providing useful feedback on SEL. Where they are augmented by appropriate curricular integration and professional development, such assessment tools have the potential to generate holistic depictions of the extent to which state education systems are meeting the evolving needs of their students and aid existing efforts to close gaps by encouraging targeted student development of SEL skills.


5Richard Rothstein et al., Grading Education: Getting Accountability Right (New York: Teachers College Press, 2008).


9See footnote 6.


11See footnote 6.


The Future of K-12 Computer Science Instruction

Children born since the early 1990s have never known a world in which computer and information technologies are not essential to every aspect of their lives. However, far too many young people, especially low-income and minority youth, lack opportunities to learn about the impact of computer and information technologies on their lives and become savvy consumers, creators, and innovators of those technologies.

Led by Arkansas Governor Asa Hutchinson, the Southern Regional Education Board (SREB) convened the Commission on Computer Science and Information Technology, comprising state legislators, secondary and postsecondary education leaders, the executive director of a state board of education, and experts. The commission met in 2015 and 2016 to determine how states can help more young people, especially girls and students of color, learn computer science and explore exciting computing careers—and for some, to start journeys toward those careers while still in high school.

Commission members believe all students must learn computer science and develop computational thinking skills, not just those considering careers in science, technology, engineering, and math (STEM) fields (box 1). Computer science offers students much more than the knowledge of how computers work or the skills needed to build a device, write code, or manage data. It builds high-level literacy, math, problem-solving, and technological skills and advances efficiency and productivity in every discipline, industry, and profession.

Box 1. Defining Computer Science and IT

A component of STEM, computer science is a distinct academic discipline defined as “the study of computers and algorithmic processes, including their principles, their hardware and software designs, their applications and their impact on society.” IT emphasizes the practical application of technology, specifically the “selection, creation, application, integration, and administration of computing technologies” to meet users’ needs. Other computing disciplines include the following:

- Cybersecurity (also known as information assurance and security) involves the protection of hardware, software, and networks from attacks.
- Information systems (IS) blends technical IT elements with business functions and focuses on the design and implementation of data management solutions.
- Computer engineering grew out of electrical engineering and focuses on the design, construction, and maintenance of computer hardware and software.
- Software engineering involves designing, developing, and maintaining software systems by applying math and computer science principles to engineering design practices.

Although well established at the postsecondary level, computer science is still sometimes confused at the K-12 level with terms like educational technology, the use of computers as a learning tool in instruction; computer literacy or digital literacy, the knowledge of how to use computer technology in an informed way; IT fluency, the ability to learn changing technologies and use them to synthesize and express new information; and computational literacy, the use of analytic skills to solve problems in computing.

many American businesses are recruiting overseas. In 2015, US Citizenship and Immigration Services received 233,000 applications for H-1Bs, also known as skilled-worker visas, which are designed to allow US employers to employ foreign workers in specialty occupations for up to six years. Only 85,000 such visas are allotted each year, mainly in STEM fields.

The college-degreed computing workforce is small, lacks diversity, and must rapidly expand if the United States is to meet labor market demand. Data from the National Center for Education Statistics, the National Science Foundation, and other sources show that only 2.4 percent of college graduates have a degree in computer science. Of these, just 8 percent are African American, 8 percent are Latino, and 18 percent are women. Less than 1 percent of the technical employees of top Silicon Valley companies like Dropbox, Facebook, and Google are African American.

### Five Actions States Can Take

In their final report, commission members offer states five actions they can take to bridge the computer science opportunity gap and ensure that their citizens have the knowledge and skills they need to prosper in a digital world.

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Table 1. Computer and Information Technology Occupations

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Entry-level education</th>
<th>2015 Median Pay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer and Information Research Scientists</td>
<td>Doctoral/professional</td>
<td>$110,620</td>
</tr>
<tr>
<td>Computer Network Architects</td>
<td>Bachelor’s</td>
<td>$100,240</td>
</tr>
<tr>
<td>Computer Programmers</td>
<td>Bachelor’s</td>
<td>$79,530</td>
</tr>
<tr>
<td>Computer Support Specialists</td>
<td>Some college or training</td>
<td>$51,470</td>
</tr>
<tr>
<td>Computer Systems Analysts</td>
<td>Bachelor’s</td>
<td>$85,800</td>
</tr>
<tr>
<td>Database Administrators</td>
<td>Bachelor’s</td>
<td>$81,710</td>
</tr>
<tr>
<td>Information Security Analysts</td>
<td>Bachelor’s</td>
<td>$90,120</td>
</tr>
<tr>
<td>Network and Computer Systems Administrators</td>
<td>Bachelor’s</td>
<td>$77,810</td>
</tr>
<tr>
<td>Software Developers</td>
<td>Bachelor’s</td>
<td>$100,690</td>
</tr>
<tr>
<td>Web Developers</td>
<td>Associate</td>
<td>$64,970</td>
</tr>
</tbody>
</table>


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The Job Market in Computing Fields

In the global labor market, knowledge of computer science, computer literacy, and computational thinking skills are required in nearly all careers. However, jobs in computer science, information technology (IT), and related fields are an especially large and growing sector of the US economy. By 2020, as many as 4.6 million out of 9.2 million STEM jobs will be computer-related. Most computer science-related jobs—by one estimate, over 70 percent—will require a bachelor’s degree or more.

Jobs in computer science and related fields pay well, and the skills needed for these jobs are in high demand. In 2015, the average median salary of jobs in computer science and IT was $81,430—more than double the $36,200 median salary of all occupations (table 1). Software developers, for example, recently ranked at the top of all jobs advertised online at a mean salary of $92,000. Data breaches at corporations like Anthem, Home Depot, and Target sparked a 91 percent growth in US cybersecurity jobs and sent salaries soaring to $100,000 per year or more.

Nationwide, however, employers in every industry report struggling to find individuals with the requisite computing skills. As a result,
Members agree: Careful planning must underpin each of these five actions. States would be wise to involve many stakeholders in considering the intended and unintended consequences of “computer science for all.” Together, secondary and postsecondary educators, government officials, economic and workforce development agencies, employer partners, parents, and community members all share the responsibility for establishing equitable access to computer science education.

1. Develop Computer Science Standards

Given their authority over standards, graduation requirements, and teacher certification, state boards of education have a key role in making computer science a priority in American schools. Only three states—Arkansas, Texas, and West Virginia—require all high schools to offer computer science (see box 2 on Arkansas). Too often, students’ choices are limited to basic keyboarding and computer applications that focus on improving digital literacy, not college-preparatory courses like AP Computer Science that truly teach computer science.

Most states lack standards for computer science, and few align their computer science curricula with existing standards. Whether homegrown by states or districts or developed by an organization like the Computer Science Teachers Association (CSTA), rigorous computer science standards not only ensure that all students develop computer science competency and fluency but also ensure that what they learn in the classroom aligns with the rapidly changing “state of the art” of computer science and computing technologies.

To meet the goal of helping all students learn computer science, states must begin with filling the standards gap.

Box 2. Early Successes of Arkansas’s Computer Science Initiative

A core campaign promise of Governor Asa Hutchinson—computer science for all Arkansas students—became a reality with the passage in 2015 of House Bill 1183, which called for every public high school to offer high-quality computer science courses beginning in the 2015–2016 school year.

Governor Hutchinson set aside $5 million to launch this initiative and address the state’s computer science teacher shortage. He also appointed members of a special task force charged with researching computer science standards and curricula, evaluating the state’s labor market needs, and recommending strategies to meet those needs. A few of Arkansas’s successes to date:

- Just six months after the passage of HB1183, more than 4,000 Arkansas students had enrolled in computer science courses, with 550 choosing more than one—an increase of 260 percent in one year. The state also saw a 609 percent increase in African-American girls taking coding classes.
- With support from the Computer Science Teachers Association, Code.org, and the Cyber Innovation Center, the Arkansas Department of Education (ADE) created computer science standards for grades K-8 and has nearly completed standards for grades 9-12.
- The state is revising its teacher certification and licensure pathways to align with its standards. To enlarge the teacher talent pool, ADE is retraining teachers through week-long boot camps and virtual professional learning communities, creating postsecondary computer science teacher education pathways, and offering a nontraditional route to licensure.
- In the summer of 2016, ADE will direct about $1 million toward preparing high school teachers to take the computer science Praxis exam and training master teachers on the state’s K-8 standards and newly launched Coding Block for grades 7 or 8.
- The Arkansas Department of Career Education designed a three-year Mobile Applications Development pathway, which teaches students how to develop apps for Android or iOS devices.
2. Lay the Groundwork

A strong academic foundation is essential to learning computer science. Yet many American students have poor literacy, math, and problem-solving skills. For example, just 28 percent of ACT-tested graduating high school students meet ACT’s college readiness benchmarks in English, reading, math, and science, according to ACT. Thus, states must design and deliver computer science curricula that advance students’ literacy, math, and problem-solving skills, empowering more students to pursue great opportunities in computing fields.

What skills do students need to learn computer science? Computer science is fundamentally about solving problems, a process that requires high-level literacy skills like the ability to perform research, read complex texts, define problems, and explain the steps of a solution. Software developers need strong writing skills to create user guides, for example. Literacy skills are also essential to coding, the use of programming languages to tell apps and websites what to do.

Computer science demands mathematical literacy because the discipline draws most of its core concepts—like binary numbers, definitions, functions, graphs, linear algebra, logic, probability, proofs, sets, and vectors—from algebra, geometry, calculus, statistics, and discrete math. Software developers creating a video game in which characters move and interact on a two-dimensional playing field are using algebra and geometry to plot positive and negative points on a Cartesian coordinate plane.

Computer science also requires computational thinking skills and personal qualities like creativity and collegiality.

The commission urges state boards of education and state education agencies to take these steps to further incorporate opportunities to develop literacy, math, and problem-solving skills from the earliest grades and through high school:

- adopt an interdisciplinary, project-based approach to instruction in which K-12 teachers empower students to take ownership of their work and recognize the connections between academics and the real world;
- incorporate applied literacy and math skills in every subject area and grade using research-based professional development frameworks.
like the Literacy Design Collaborative (LDC) and the Mathematics Design Collaborative (MDC);

- target underprepared students with readiness courses and other interventions that help students meet grade-level literacy and math benchmarks, like SREB’s Ready for High School, Literacy Ready, and Math Ready courses; and

- ensure that computer science courses are not used to replace a strong sequence of math courses for students planning to pursue postsecondary studies in computing fields. For example, a student interested in computer science needs to take higher-level courses like precalculus, calculus, statistics, finite math, or discrete math. A student interested in an applied IT field may need algebra I and II, geometry, statistics, and other advanced courses.

3. Create Clear Pathways to Computing Careers

By 2020, the United States may have 1 million more computing jobs than individuals with the computing skills needed to fill them, according to nonprofit Code.org. At the same time, fewer students are graduating ready to earn the college degrees and credentials needed to secure these jobs. Career pathways solve this problem by bridging the gap between high school, higher education, and careers in computer science or fields that require significant computing know-how.

State boards of education can play a major role in building career pathways. The commission recommends that states convene career pathway advisory councils that bring together secondary and postsecondary educators, workforce development agencies, industry leaders, parents, and other members of the community. These councils can be asked to make recommendations on the following:

- creating career pathways in computer science that offer a sequence of at least four courses that connect seamlessly with postsecondary credential and degree programs and align with a college-ready academic core;

- designing road maps that illustrate the on- and off-ramps students can take to degrees and jobs in computing fields;

- identifying such measures of students’ mastery of computer science knowledge as third-party industry certification exams (e.g., CompTIA A+) and validated assessments (e.g., AP exams) that carry college credit; and

- informing students and parents about their choices and helping them navigate college enrollment and credit-transfer processes.

Table 2 illustrates a four-course sequence in programming for students interested in becoming software developers. In 9th grade, Exploring

<table>
<thead>
<tr>
<th>Grade</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Exploring Computer Science</td>
</tr>
<tr>
<td>10</td>
<td>Applied Course (Digital Media, Animation, Robotics, AP CSP)</td>
</tr>
<tr>
<td>11</td>
<td>Programming I (AP CS A, Java I, C++ I, Python I, Visual Basic I)</td>
</tr>
<tr>
<td>12</td>
<td>Programming II (Java II, C++ II, Python II, Visual Basic II) Internship / Project</td>
</tr>
</tbody>
</table>

* = Courses include dual enrollment options that accelerate attainment of college degrees and credentials.
Computer Science or a similarly accessible course takes a hands-on, project-based approach to introducing computer science concepts and practices. In 10th grade, courses like computer animation, digital video production, game design, or robotics may entice students to pursue deeper studies. In 11th and 12th grade, students might take a two-course sequence in a programming language or two courses in different languages. Dual enrollment courses accelerate students’ progress toward a degree. In all grades, experiential learning brings real-world intensity to learning—culminating in an internship or capstone project.

States can support pathways like these by including measures in their accountability systems that reward districts and schools for offering career pathways leading to postsecondary studies in high-demand computer science and IT fields.

4. Prepare Great Computer Science Teachers

Great teachers spark students’ interest in computer science and thus put more of them on a path to degrees and careers in computing fields. Whatever their background, great computer science teachers are problem solvers with an interest and passion for technology who guide student inquiry and who learn alongside their students instead of having all the answers.

Yet for many new and veteran teachers, acquiring a certification to teach computer science is frustrating and complicated. Most states lack postsecondary teacher preparation programs in computer science, and many offer a confusing array of certifications, endorsements, and licensures that may not even include computer science content or pedagogies.10

Commission members believe the solution is for states to create multifaceted certification and professional development systems that help new and veteran teachers acquire computer science content knowledge and master the pedagogical skills needed to engage diverse learners. States can do the following:

- embed computer science content in preservice preparation programs and in-service endorsement programs for elementary and middle school teachers;
- partner with other states and the Educational Testing Service to design a new computer science Praxis exam that reflects current computer science content and instructional practices;
- work with educator accreditation and certification organizations (e.g., Council for the Accreditation of Educator Preparation, the National Board of Professional Teaching Standards) to add computer science to preparation and certification programs;
- adopt creative compensation strategies—like sign-on bonuses, 12-month salaries, and student loan forgiveness programs—to recruit teachers with know-how and passion; and
- provide time for interdisciplinary teacher teams to engage in shared professional development on designing project-based lessons and assignments that blend literacy, math, and problem-solving skills with computer science content knowledge.

5. Educate Communities

Knowledge, image, access, and equity are the most challenging barriers to computer science education. Few students, especially girls and students of color, are aware of emerging career opportunities in computer science. They may not know anyone with a degree or job in a computing field. Many are not encouraged to take computer science courses or obtain computer science degrees. And studies have shown that students of color, especially in underresourced schools, have fewer opportunities to learn computer science.11

“We have to start by building an understanding of computer science and allowing flexibility within the curriculum to personalize learning around career fields and projects that excite students,” said Donna Johnson, executive director of the Delaware State Board of Education.

American parents want their children to learn computer science. In a recent Google and Gallup poll, two-thirds of surveyed parents—and three-quarters of the lowest-income parents—supported required computer science courses.12 Despite this support, less than half of surveyed teachers, principals, and superintendents thought that computer science was a top priority for their school boards.
Two key strategies can help states educate school leaders—and the whole community—about the value of computer science and computing careers.

First, schools can create career exploratory school cultures through teacher advisement systems in which teachers and counselors together design lessons that help students identify interests and plan for life after high school. Individualized graduation plans, career exploration courses, and career aptitude and interest inventories help students learn about jobs, investigate colleges, and identify their potential. Experiential learning—like job shadows, volunteer experiences, and paid and unpaid internships—help students build confidence, cultivate soft skills, and explore adult responsibilities.

Second, state boards of education in their accountability systems can recognize schools, districts, and communities that incorporate computer science learning opportunities across K-12. They also can create career pathways that bridge high school and higher education and reduce workforce gaps in high-demand fields.

**Advice for State Boards**

As state boards in the SREB region and across the country advance their computer science initiatives, they can look to neighboring states for their achievements and the obstacles they faced. Arkansas Governor Asa Hutchinson credits his state’s early successes to broad public knowledge of his commitment to computer science, strong legislative support, generous funding, educational leadership, and the enthusiastic response of Arkansas students. By taking these five actions, state boards can support strategic planning and smart policies that empower all students with the knowledge and skills they need to become creators of computer and information technologies—and, for some students, to begin journeys toward fulfilling careers.

3. This is based on 2013 data. A.P. Carnevale et al., *The Online College Labor Market: Where the Jobs Are* (Washington, DC: Georgetown University Center on Education and the Workforce, 2014).

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Over the past eight years, the School Improvement Grants program (SIG) grew from a relatively small federal program to one of the most substantial direct federal investments in turning around low-performing schools. The American Recovery and Reinvestment Act of 2009 (ARRA) provided $5 billion for SIG from 2009 to 2012 alone. In total, five cohorts of grantees—almost 2,000 schools nationwide—received three-year infusions of support.

Turning around low-performing schools has been a constant theme in education policy for decades. Although called by other names over the years, the fundamental objective has remained constant: changing schools that historically have not well served their students into ones that provide effective, equitable learning opportunities. The focal point of policy attention and action has shifted over time from the child (e.g., compensatory education) to schools (e.g., effective schools, “New American” schools, turnaround schools) to teachers (e.g., teacher evaluation systems), and to school leaders. With the recent reauthorization of the federal Elementary and Secondary Education Act as the Every Student Succeeds Act (ESSA), the focus shifted substantially to what states can and should do.

There is more than a little irony here: States have always been the locus of education policymaking—even when the federal government ignored that fact. Yet the shift in ESSA is hardly rhetorical. ESSA’s explicit reliance on states presents an opportunity for states to craft solutions based not only on what has been learned nationally but on states’ own expertise and accumulated institutional knowledge.

As remarkable as the SIG investment was—and as was the national commitment to school improvement it represented—states’ choices in how to turn around low-performing schools were rather restricted. In the lowest 5 percent of chronically low-performing schools, states had the choice of four aggressive interventions:

- **restart**, in which the low-performing school was converted to a charter school or given to an external management organization;
- **turnaround**, in which staff were replaced and major instructional and governance changes made;
- **transformation**, in which both the principal and many staff were replaced, as well as major instructional and governance changes made; and
- **closure**, in which the low-performing school was closed and students sent elsewhere.

### What Have We Learned?

Congress and the administration recognized the singular nature of this investment and the potential to learn from it. Consequently, the US Department of Education devoted over $30 million across multiple, long-term implementation and impact studies to studying SIG turnaround efforts. The final report of the impact evaluation is due in September 2016. Thus far, the findings are remarkably consistent with prior research:

- School improvement is challenging and fragile.
- What principals and teachers do (e.g., establish safe and secure schools, change patterns of teaching and learning, use data to guide improvement) is more important than how they do it (e.g., principals can be strong, charismatic leaders or more managerial in style).
- Implementation quality matters and can be improved through external technical assistance.
- Districts and states play important roles in incentivizing improvement through supports and sanctions.
There are multiple ways of combining these and other reform strategies and practices.

Change takes time.3

Even before the latest studies, analysts and education leaders have recognized the implementation challenges schools and districts face. Impact findings from the SIG evaluation will likely be tentative at best and perhaps controversial. Undoubtedly, they will be heavily qualified and replete with limitations and disclaimers. This is not a criticism of ED’s research investment nor the quality of the work. Rather, it is a recognition of the inherent challenges to understanding how to improve the nation’s lowest performing schools.

State boards of education and state education agencies (SEAs) hoping to improve student learning using the best possible evidence face an intractable problem as they contemplate policies affecting low-performing schools. It is virtually impossible to have high levels of confidence in our understanding of the causes of school failure or in the likelihood that policy and programmatic interventions will succeed.

Such a claim requires explanation. The twin curse plaguing those of us who try to understand school failure and school improvement interventions lies in the very nature of those failures and interventions. School failure has myriad causes: in-school factors, out-of-school factors, observable factors, and unobservable factors. They have to do with the child, the child’s family, teachers, schools, and systems. Many of these factors alone are significant enough to explain the failure of any given school. For example, high poverty rates, high proportions of English language learners, high proportions of students with disabilities, high student mobility, high teacher turnover, or poor reading instruction each can explain school failure by itself. This makes trying to understand the relative roles of different factors and how they interact next to, if not completely, impossible. In technical terms, we face a problem of overdetermination. Because so many factors cause school failure, interact in too many ways, and all depend on a multitude of contextual factors, a comprehensive, valid, reliable explanation of school failure is simply beyond our current grasp. Yet such understanding is vital for policymaking, as the best policies are predicated upon understanding the problem to be solved.

The opposite problem confronts those looking at remedies for school failure. We know too little about most policy interventions to start teasing out how well they work, for whom, and under what circumstances. There is not enough evidence to understand the multiplicity of relationships between the factors that cause school failure, the factors interventions attempt to manipulate, and implementation fidelity. In technical terms, we face a problem of underdetermination. While researchers can sketch some ways a given intervention works, they generally cannot yet understand how it works, how well it works, whether it works best in conjunction with other interventions, or how it works for different schools, teachers, or students.

Evidence-Based Solutions

Where does this leave state policymakers? First, states can spend more of their Title I funds on turnaround: up to 7 percent from 4 percent. Because states no longer have to comply with the strictures of No Child Left Behind’s accountability regime nor ARRA’s equally arbitrary mandates, states get to do what they do best: experiment by attending to their particular priorities and values while building on what research does say about turning around low-performing schools.

ESSA mandates that states identify and approve plans for turning around low-performing schools. States must rely on evidence-based solutions in doing so. In the abstract, that makes perfect sense, but given that there is far less practical knowledge than would be ideal, basing policy and programmatic interventions primarily on the research evidence borders on wishful thinking. Building a robust body of evidence-based solutions has been far more difficult than ESSA presumes and yielded far more tentative findings. Even what constitutes so-called Tier I evidence under ESSA often includes interventions that may have very few studies (sometimes as few as one). ESSA’s evidence tiers would be far more helpful were there multiple studies of more interventions at each tier. Instead, there are very few rigorous studies of any given policy or programmatic intervention.4
The intent of ESSA clearly is to return some balance to education policymaking by explicitly recognizing the role that states must play in improving schools. It is an invitation to states to innovate and an acknowledgment that, however well-intentioned, NCLB and ARRA mandates created as many challenges as they solved. One of the least appreciated challenges created by ARRA was that the rush to compete for ARRA’s largesse induced states to make major policy changes such as teacher evaluation systems in ways that left teachers and local administrators often feeling that major shifts were thrust upon them with little or no input and less than complete implementation strategies. As a consequence, the wrath of educators most responsible for running schools and teaching students was directed at state agencies, not the federal government.

One important lesson from the research on improving low-performing schools has been the importance of implementation fidelity. While commitment to implementing new programs and policies can be achieved by mandate, implementation research favors voluntary choice. One way of not only improving commitment to implementation but also potentially improving policymaking and program design is by involving key stakeholders, especially teachers.

Several initiatives are exploring ways of infusing state policy with teacher perspectives and expertise. Hope Street Group, through its State Teacher Fellows program, provides extensive training, resources, and ongoing support to cohorts of teachers in four states: Hawai‘i, Kentucky, North Carolina, and Tennessee. In each state, Hope Street Group partners with the SEA and other relevant policy organizations (often teachers associations and foundations). In each state, teachers gather data from fellow teachers via surveys and focus groups on actionable topics of importance and immediate relevance to the SEA. The state in turn uses the data to improve policy and practice. For example, in Hawai‘i, State Teacher Fellows recently collected data to inform the development of the implementation plan for the Next Generation Science Standards that was ultimately adopted by the Hawai‘i State Board of Education.

School turnaround cries out for the inclusion of teacher perspectives. Early evaluation findings of Hope Street Group’s work suggest that states’ reaching out to teachers and then acting on just some recommendations can have a transformative impact on the attitudes and beliefs of many teachers. State boards can play an important role in calling for SEAs to seek input from teachers before formulating policy.

Over recent years, most states have revisited their standards to ensure they remain adequate to prepare students for postsecondary work and education. Concurrently, educators have paid increasing attention to the idea of deeper learning—that is, mastery of core academic content and the development of higher-order thinking skills and dispositions toward learning. Research has documented that high school students in schools emphasizing deeper learning were more likely to graduate on time. While the effects were weaker for higher poverty students, they were still significant. Deeper learning has not yet been a high-priority strategy for turning around low-performing schools. Applying the principles of deeper learning to low-performing schools is exactly the kind of innovative solution ESSA should inspire.

The demise of the SIG program neither ended the expectation nor the commitment to turning around low-performing schools. Rather, it created an opportunity and a challenge for states. Freed from the bonds of federal mandates, freed from the bonds of rigid intervention schemes and limited choices, states can engage in new ways of turning around low-performing schools.

With the opportunity comes the responsibility to get it right. ESSA presumes that the way to do that is by imposing evidence standards. Evidence standards can be helpful, given enough evidence. The challenge for states is to take the guidepost provided by ESSA’s evidence standards and build not only innovative solutions to the problem of low-performing schools but also building a knowledge base on how to do so.


2 Under ARRA, states were to step up efforts to turn around low-performing schools while also revising standards, improving state data systems, and perhaps most...
The Future of Personalized Learning for Students with Disabilities

Personalized learning models can give each student differentiated learning experiences based on their needs, interests, and strengths— including students with disabilities. State boards of education that seek to support their state and local schools’ efforts to design technology-powered personalized learning environments should ensure that the needs of students with disabilities are neither dismissed nor overlooked.

Sixty percent of students with disabilities spend 80 percent or more of their day in general education classrooms. Personalized, competency-based learning provides a powerful strategy to allow those students to be integrated into general education classes and to receive supports and interventions without being singled out or stigmatized, thus improving their educational outcomes (see box 1).

As part of this approach, learner profiles capture skills, gaps, strengths, weaknesses, interests, and aspirations of each student, and personal learning paths match diverse learning experiences to individual needs, goals, and objectives. In addition, blended and online tools can be incorporated to personalize learning in the least restrictive, most tailored way for students with disabilities.

If state policymakers, school and district leaders, course designers, instructors, and program managers are not intentional

States that are building room for personalized learning into their education systems should ask how new policies address the needs of students with disabilities.

by Maria Worthen
about designing personalized learning experiences for students with disabilities, they risk excluding them. Federal law protects the rights of students with disabilities to access a free, public education. These laws do not provide for proactive enforcement but rather rely on complaints and lawsuits for compliance. Proactive state and local implementation of learner-centric environments will do a better job than courts can in ensuring access and equity for all students.

Policies to Build Competency-Based Systems

In competency-based systems, students move from one standard or level to the next after demonstrating mastery of a concept or competency. This model inherently gives students flexibility to move on when ready, take more time on difficult concepts, and accelerate in areas where they excel. However, flexible pace should never mean leaving students to their own devices, allowing them to fall further and further behind. A crucial element of competency-based education is timely, differentiated supports to ensure that all students are staying on track for college and careers. Such systems require educators to continually monitor student pace, track performance, and customize curriculum.

To better enable competency-based systems, policies should make room for schools and districts to base credit hours on demonstrated mastery rather than seat time, award proficiency-based diplomas, align systems of assessments, and provide targeted supports and interventions. State policymakers can also create innovation zones, such as the Kentucky Districts of Innovation and the Colorado Innovation Schools, and pilots such as the Ohio Competency-Based Education Pilot. Innovation zones exempt select districts and traditional public schools from certain administrative regulations and statutory provisions to enable them to develop new learning models. A successful pilot program will include sharing and scaling best practices in other localities. Ultimately, effective strategies demonstrated in state pilot efforts can be shared statewide and increase understanding of the power of student-centered learning.

When planning for innovation zones and pilots, state and local leaders should include stakeholders that represent the interests of students.
students with disabilities to ensure that their needs are not overlooked.

**New Opportunities for States under ESSA**

The passage of the Every Student Succeeds Act (ESSA) provides a historic opportunity for states to redesign K-12 education systems to support competency-based, personalized learning. As state policymakers rise to this challenge, the diverse needs of students with disabilities should be considered at every step. ESSA provides three fundamental opportunities that support a shift to personalized learning: redesigned systems of assessments, accountability, and education preparation and licensure.

**Redesign assessment around student-centered learning.** ESSA allows states to design more innovative systems of assessments. States may include assessments in these systems that

- measure individual student growth,
- use adaptive test items outside of a student’s grade level,
- are administered multiple times throughout the year, with interim results combined into a summative score, and
- incorporate multiple assessment types.

States wishing to pilot innovative assessments with a subset of districts, or with district flexibility around the items incorporated into assessments can apply to participate in ESSA’s Innovative Assessment Pilot. New Hampshire has already launched its own Performance Assessment for Competency Education (PACE) system, which some states are examining as a potential model for assessment system pilots. A number of breakthrough assessment models are being developed and piloted in districts across the country through the Assessment for Learning project. As states develop systems of assessments with multiple measures of student learning, leaders should ensure that these new assessments provide access to the appropriate accommodations for students with disabilities.

**Rethink accountability.** ESSA presents an opportunity to redesign K-12 accountability systems to support student-centered learning. It moves away from No Child Left Behind’s narrow definition of success as a single test score and opens up space for states to engage stakeholders in a conversation about what success looks like in a multiple measures accountability system. Accountability can be reframed as a tool to drive continuous improvement, flagging for districts in real time when students and schools need support and driving resources where they are most needed.

State policymakers should ensure these new accountability systems measure student outcomes and growth of students with disabilities throughout the school year and motivate ongoing improvement of student learning outcomes. State board members should engage diverse stakeholders, including disability advocates, in conversations about accountability measures that define success in their states.

**Modernize educator and leadership development and licensure.** A highly trained, engaged educator workforce will be the single most important driver of a successful personalized, competency-based education system. Educators and leaders will take on new roles as they work individually and collectively to design customized pathways to graduation for every student. Many educators will require new skills to adapt instruction in this way. Thus significant changes to preservice preparation, professional development, and evaluation frameworks will need to follow.

Until recently, federal teacher requirements focused almost exclusively on input-based requirements like NCLB’s now-defunct Highly Qualified Teacher (HQT). HQT provisions were repealed with the passage of ESSA—an important first step. It will be up to the states to lead the critical next step: shifting the focus to demonstrated educator competencies as the basis for credentialing on demonstrated outcomes, rather than on time-based inputs.

State policymakers should ensure that preservice preparation, professional development, and evaluation frameworks give educators, course designers, and administrators the supports and resources they need to understand and meet the diverse, unique needs of students with disabilities and apply best practices.

Preservice teacher preparation programs must strengthen future educators’ abilities and skills to work with students with disabilities in personalized learning environments. State-level policymakers might consider offering badges...
Blended Learning, Online Learning, and Digital Content

Multiple, flexible pathways for learning create distinct, rigorous paths for students to gain the real-world skills and experiences they need to be successful after high school. These pathways encompass learning outside traditional classrooms: after-school programs, apprenticeships, community service, internships, independent study, online courses, performing arts, private instruction, and career and technical and college-level coursework. For students with disabilities, multiple pathways mean new possibilities for the least restrictive learning environment. Leaders and educators should ensure that each is accessible for every learner, with appropriate accommodations for students with disabilities.

Blended and online learning tools support these personalized pathways by offering flexible pacing, differentiated instruction, immediate interventions, and anytime, everywhere learning. These tools enable personalized learning at scale, foster student-centered instructional approaches, and facilitate student co-design with their teachers of how to meet their learning goals.

While the possibilities are significant, it is up to policymakers and educators to ensure that the needs of students with disabilities are addressed with these tools.

State policymakers should demand that online learning opportunities are of high quality and rigor and are fully accessible to all. Through the adoption of high-quality, rigorous, outcomes-based performance metrics, districts, schools and programs can advance quality and quality assurance. State policymakers should adopt nationally recognized quality standards—such as the National Standards for Quality Online Courses from the International Association for K-12 Online Learning, or iNACOL—and they should establish a statewide process to review courses, with detailed criteria for meeting the legal requirements for students with disabilities and the national standards.

Texas has done so through its Virtual School Network (box 2).

According to the US Department of Education’s Office for Civil Rights (OCR), which is responsible for monitoring and enforcement of federal civil rights legislation in educational institutions, “Those with a disability are able to acquire the same information and engage in the same interactions—and within the same time frame—as those without disabilities.” Policymakers should ensure districts and schools are meeting this requirement in the design and implementation of all digital content. For example, digital educational content requires the careful use of color to protect the needs of students with color blindness, and all video materials need to be captioned to level the playing field for students with auditory

Box 2. Lessons from Texas

The Texas Virtual School Network (TxVSN) provides Texas’s public school students with expanded course offerings across learning environments from diverse, accountable providers. The Texas Education Agency oversees the TxVSN, which is operated by Education Service Center (ESC) Region 10. As part of TxVSN’s quality review, course providers must align coursework to state curriculum standards, meet the iNACOL National Standards for Quality Online Courses, and meet accessibility standards. These requirements are embedded in state law.

The iNACOL standards call for courses to comply with federal law and “meet universal design principles, Section 508 standards and W3C guidelines to ensure access for all students.” To ensure compliance, ESC Region 10 developed accessibility standards with detailed guidance and resources for meeting the iNACOL standards.

These accessibility standards inform each course review, conducted by two Texas-certified content area teachers. If there are any points of disagreement, the teachers meet to come to a consensus. After the teachers have reached a decision, the course is either approved, or TxVSN gives the course provider a report summarizing why the course did not meet the standards. Providers have 60 days to make modifications and resubmit the course for review. For more information, visit http://www.txvsn.org.
impairments or auditory processing issues. It is not sufficient for a district, school, or program to wait until they have a student with a disability to make the content accessible. All open content must be accessible to students with disabilities.

Education leaders should ensure that digital content for blended and online programs is designed in accordance with Universal Design for Learning (UDL), a set of principles for curriculum development that gives all individuals equal opportunities to learn. UDL provides a blueprint for creating instructional goals, methods, materials, and assessments that work for everyone. Three primary principles guide UDL: provide multiple means of representation, provide multiple means of action and expression, and provide multiple means of engagement. The National Center for Learning Disabilities recommends aligning UDL with multitudinal systems of supports (MTSS) in order to fully meet students’ needs in personalized learning environments.

Policymakers should ensure that their states implement procurement guidelines to align new software, hardware, and technology to accessibility requirements and the UDL framework. They and other stakeholders should encourage vendors to create technology that is not retrofitted for students with disabilities as an afterthought but is intentionally accessible by design and meets federal and state accessibility requirements, including Section 508 of the Rehabilitation Act.

It is in the best interests of all learners for states, districts, schools, and programs to meet legal accessibility requirements and go beyond them to implement best practices for accessibility. Equally important as new technologies emerge is ensuring that all instructional content is proactively developed for accessibility. Trying to make existing digital content and courses accessible is considerably more difficult than ensuring accessibility from the beginning. All programs should create only accessible digital materials and create a plan for making inaccessible content accessible.

Open educational resources (OER) are learning materials that are licensed so as to permit educators to freely share, access, and collaborate in order to customize and personalize instruction. Because OER can be repurposed and customized to meet the needs of all students, states and districts can leverage OER to improve the accessibility of digital learning materials. Policymakers can enable the use of high-quality OER by supporting the development, evaluation, and infrastructure needed for educators to access and customize standards-aligned instructional materials and assessments. They should ensure that quality rubrics for OER include accessibility criteria. For example, Washington State provides support and opportunities for districts to collaborate to effectively use OER.

Conclusion

Personalized, competency-based learning can close achievement gaps for students with disabilities and truly prepare them for success in college and the new economy. States can leverage ESSA to transform K-12 education to this end. As states redesign systems of assessments, rethink next generation accountability systems, and build educator capacity, states need to ensure they are considering the needs all learners, including those with disabilities.

The issues of access and equity have implications for every blended and online learning program. Blended and online learning hold promise for better meeting the needs of students with disabilities with personalization and adaptive learning. However, new learning models must be designed with all learners in mind to realize this promise. State policymakers can play an important, active role in ensuring access and equity for all students, including students with disabilities.

Resources

As part of its policy advocacy work, iNACOL provides policymaker technical assistance and education to catalyze the transformation of K-12 education toward powerful, learner-centered, personalized learning. We annually publish the iNACOL State Policy Frameworks, with concrete, actionable recommendations for lawmakers wishing to enact policies that support this shift, and recently published. Promising State Policies for Personalized Learning, with examples from law, statute, and guidance in leading states. Additional insights on how the policies described here can be implemented to aid students with disabilities can be found in iNACOL’s Access and Equity for All Learners.
As state boards of education and other state policymakers consider the future of schools, sorting fad technology from technology that accelerates learning is key. Virtual reality (VR) is one such technology with promise that seems unlikely to fizzle. Hailed as potentially transformative for education and still in the early stages of application, VR has seen new developments over the past two years that have tipped it into the column of technologies that schools could begin to adopt now.

An ever-expanding roster of both new and established companies—zSpace, Alchemy VR, Facebook, and Google, among others—are providing more options than ever to make this technology available and affordable for education. Policymakers will want to keep an eye on this technology and determine whether they want to encourage greater VR adoption in their state.

What Could Virtual Learning Look Like?

Virtual reality is a “computer-generated environment that lets you experience a different reality.” Users don VR headsets to immerse themselves in a virtual environment. Alternatively, a VR headset could provide an “overlay,” such as instructions that appear in your field of vision that tell you how to fix an actual car engine or showing virtual characters to “catch,” as in Pokémon GO. A user wearing a VR headset in a classroom context could tour the Grand Canyon, visit another country, or join Martin Luther King, Jr., in the 1963 March on Washington.

Zach Huberty, a VR expert, likened the experience to a real-life “Magic School Bus,” the 1990s television show in which students traveled on unusual field trips inside the human body and back to the time of the dinosaurs. In fact, the technology is already used in medical and veterinary schools to let students explore and dissect virtual bodies in ways that would not be possible with actual cadavers. According to Robert W. Hasel, D.D.S., associate dean of simulation, immersion, and digital learning at Western University of Health Sciences in California, these virtual experiences are “engaging, pulling the learner in, consuming their attention, allowing them to interact, and allowing them to take responsibility for their own education. This is similar to a person playing a video game; they are responsible for what they do in that environment, they take ownership to their education in that environment, and it is fun.”

K-12 Applications

There are only “pockets of utilization” in K-12 education now, says Scott Kinney, a senior vice president for Discovery Education. However, there is great potential: Kinney cites a current Discovery Education VR app called Racing Extinction that takes students to the rain forest. He suggests that a future app could take students back in time to see Lincoln give the Gettysburg Address and see the battlefield as it looked then.

VR also has potential for teaching math and science: Samantha Adams Becker, senior director of publications and communications for the New Media Consortium, said that students studying the periodic table could “hold a chemical in their hands, to look at the structure of the chemical and the proteins and view it in a more 3D way,” adding that “those types of tactile experiences are proven to bolster deeper learning.” Another program lets a teacher virtually take her students to Egypt’s pyramids in order to learn how to calculate area and volume.

Many users and experts cited the recently launched VR education program, Because it can engage students and is increasingly affordable, virtual reality technology may be on the cusp of widespread adoption in K-12 settings.
Explores, which Google developed for schools. Program manager Jennifer Holland noted that schools need only a smartphone, a tablet, and a VR viewer to “teleport all over the world.” VR can also be used to visit nearby places that may be hard for kids to get to. Holland used the example of a Crow cultural celebration in Montana in early 2016 that students from a school three hours away could not attend, “but if we can capture it and bring it to the school, not only can that school learn about the Crow Indian tribe, but schools all over the world can. It changes the dialogue for how we talk about cultures and people and historical events.”

When students at Benjamin Banneker Charter School piloted Google Expeditions early this year, teachers enjoyed it so much that they signed up for extra sessions. Jared Perrine, director of innovation technology and digital learning at the Cambridge, MA, school, said they participated in VR field trips on Mars and at the bottom of the sea.

Because a student’s experience in virtual reality is different depending on what she focuses on in the virtual environment, VR also enables personalized learning and thus “opens up huge areas of possibilities to think about how we really differentiate for kids and what are the types of environments that make sense for them,” says Kinney.

Virtual reality can also be used to help students with their college and career decisions. Becker noted that Soledad O’Brien’s scholarship foundation helped young women in New Orleans to experience a veterinarian performing a procedure through virtual reality. Since many of them did not know there were jobs like vet tech assistant, it “opened up a new world to them,” she said. First Lady Michelle Obama’s “Reach Higher” program wants to use VR to let students virtually visit college campuses.

Though VR education research is in its infancy, many small studies have shown that virtual reality in education is beneficial to students. For example, two studies showed that students’ comprehension of geometrical concepts and anatomy improved after VR experiences.

What State Policymakers Can Do

As with any new technology, the VR “buzz” could fade. However, the affordability of adopting VR and the increasing number of free or low-cost virtual environments that are being developed make it more likely that VR will take off in education. This does not mean that a state should push for immediate VR adoption in every classroom; Kinney emphasized the importance of piloting VR to keep costs low and “prove the educational value” before scaling up. Becker also advised that such pilot programs integrate teacher perspective and feedback.

Holland suggests that policymakers who want to see VR adopted in their state can be supportive by “encouraging schools to take that leap forward” and providing the resources to aid teachers in professional development and funding technology in the classroom.

VR is not the only new technology with huge potential for education. Advancements like...
in accountability systems dishearten teachers? Will teacher buy-in be greater in systems that incorporate and weight measures that focus on formative development, such as observations that entail pre- and postconferences? Do VAMs—which tend to be viewed by teachers as opaque, both in their construction and their value to teachers in terms of instructional improvement—discourage teachers from teaching in tested grades and subjects? It remains an open question whether the measures that states and districts use motivate teachers to improve or compel them to transfer out of grades or teaching assignments.

Looking Ahead

A growing body of evidence suggests that recent teacher evaluation reforms have improved teaching and learning and helped identify and remove the lowest-performing teachers. With the additional autonomy provided under ESSA, state and district administrators can further enhance their teacher evaluation systems—and tailor those systems to their schools’ and districts’ unique needs, values, and capacities. This article should provide foundational guidance to state policymakers and administrators as they review and consider revising their existing systems.

5Steinberg and Donaldson, “The New Educational Accountability.”
8Steinberg and Donaldson, “The New Educational Accountability.”
9Steinberg and Sartain, “Does Teacher Evaluation Improve School Performance?”
11Student growth percentiles and VAMs both measure teacher performance based on student achievement data. However, student growth percentiles do not statistically account for student or class characteristics in the way that VAMs do.
12Steinberg and Donaldson, “The New Educational Accountability.”
15Steinberg and Donaldson, “The New Educational Accountability.”
16Ibid.
17Steinberg et al., “Have We Identified Effective Teachers?”
18Steinberg and Donaldson, “The New Educational Accountability.”
19Ibid.
20Ibid.
21Ibid.
22Ibid.
23Ibid.
25Steinberg and Donaldson, “The New Educational Accountability.”
27Ibid.
28Ibid.
29M. Steinberg and Sartain, “Does Teacher Evaluation Improve School Performance?”
cont’d from pg 42... The Future of Virtual Reality in the Classroom
digital textbooks and new learning apps could also spur greater educational achievement. No matter what technology a state adopts, “it’s not about advancing tech, it’s about advancing a teaching and learning strategy that is really going to promote deeper learning,” says Becker. Policymakers will want to monitor technological advancements and obtain input from educators to see whether the technology in question is a tool that works for them. 


cont’d from pg 39... The Future of Personalized Learning for Children with Disabilities

Blended and Online Education and the National Center for Learning Disabilities’ Personalized Learning: Policy & Practice Recommendations for Meeting the Needs of Students with Disabilities.


2A personalized learning plan is not the same thing as an Individualized Education Program, which is required by the Individuals with Disabilities Education Act. IEPs are written statements for each child with a disability that must include information on the student’s academic progress, address how the child will be integrated into and supported in the general classroom, and describe any special instructional needs, services, or accommodations. Although personalized learning plans and IEPs share a focus on the needs of each child, the IEP is designed to ensure that a student who is eligible for special education services receives them and that accommodations and supports level the playing field with their peers and allow them to participate in the general education classroom.


4S. Patrick et al., Promising State Policies for Personalized Learning (Vienna, VA: INACOL, May 2016).

5This allows districts and regular public schools flexibility similar to that provided charter schools, though that flexibility will vary depending on the state. For example, Colorado’s Schools of Innovation policy allows traditional public schools some flexibility around budgeting and curriculum, but local collective bargaining still applies, and teachers have to vote annually to remain as a school of innovation.

6The grant-funded project is part of the Next Generation Learning Challenges initiative, founded by Ed ucause in partnership with several other organizations, including INACOL. See http://nextgenlearning.org/assessment-learning-project.


R. Rose, Access and Equity for All Learners in Blended and Online Education, (Vienna, VA: INACOL, October 2014).


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In many other fields of endeavor, technology has led to disruptive innovations that are fundamentally changing the nature of the enterprise, but few seem to have taken hold in education. What innovations on the horizon could actually disrupt the education model we see in schools today?

What needs to be disrupted are those moments where privilege matters more than merit. The reason we transformed the SAT and the programs surrounding it was to reclaim its potential to disrupt privilege over merit. When the SAT started, its aim was to allow students, regardless of background, to compete on an equal playing field.

But when I began as president of the College Board years ago, we all realized that things had grown up around the college admissions process that undermined the fairness of the exam, such as the cost of test preparation. That’s why, when we redesigned the exam, we announced that we were also providing free test preparation. And as a consequence of that disruption, there are now four times as many students taking free test prep than those taking all of the costly test prep in the country combined. We are seeing major drops in self-reported enrollment to costly test prep [compared with] practice for free on Khan Academy. We are disrupting the costly test preparation industry.

Much more important, we are disrupting the fabric of inequality in this country. It is very important that all students get the chance to practice and share their best work. People hoped the SAT could help locate students who might be lost in a high school but could announce themselves through their high scores—despite low income—as ready for college. What we found is that more than half of those very low-income, high-achieving students do not apply to college. Not a single selective college, to be precise. We found that one reason is because they have to first apply for a fee waiver to apply to college, and that slows them down. So now we give four fee waivers to apply to college to all low-income students who take the SAT.

My favorite day on the job so far was when a kid posted the fee waivers we sent him on Instagram, and he said, “The College Board sent me fee waivers to apply to college because I am awesome.” He didn’t say it was because he’s poor.

Discussions about technology disrupting how we listen to music or how we get certain luxury goods may not be nearly as important as disrupting the substantial inequality in our society today.

The solutions aren’t only technological. We partnered with the Boys & Girls Club, local churches, and school districts to make sure that a caring adult is also involved. We have worked to expand the scholarships that are aligned with the PSAT, which has long been associated with the National Merit Scholarship. Scholarships can mean disruption, [but] scholarships too often depend on who you know. Does a counselor at your school know about the scholarship, and does that person know about you and link the two together? That heavily disadvantages students, often in rural environments, who may not be as aware of these scholarship competitions. We now give data to scholarship organizations...
besides National Merit so organizations like the Hispanic Scholarship Fund can find students that otherwise didn’t know about their scholarships. As a result, their fund may have many more rural candidates winning for the first time.

We think about disruption a little differently. We think about what patterns of inequality emerge that are unrelated to merit—are in fact hostile to it—and we look to disrupt those.

As another example, we found that there are 162,000 young women in America ready for Advanced Placement computer science. But in the actual exam given in 2015, only 10,000 test takers were young women. That’s something you want to disrupt. We’ve been reaching out to principals and other school leaders to make sure that not only young women but also African Americans, Latinos, and other underrepresented students take the opportunities they’ve earned.

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It is easy for a policymaker or the public to embrace the philosophy of high standards, but when the assessment data comes in and we learn that kids are not there yet, then there’s pressure on states and on state boards to lower those standards. What kinds of conversations do we need to have to ensure that the pressure gets put in the right place?

Assessment without opportunity is dead. Trying to defend tests that do not give a direct benefit to students and families will not be sustainable. We’ve put school boards in a terrible position—defending exams where the parents and kids who take them don’t feel they’re getting something from them. That’s why we at the College Board have tried to redesign everything we do to make sure students get concrete opportunities when they take an exam.

For example, we added $180 million of additional scholarships to the PSAT/NMSQT. Every low-income kid who takes the exam gets fee waivers to apply to college, and every student who takes one of those exams automatically gets a free account on Khan Academy to attend to their personal needs. It’s personal practice that adapts to them. If they choose to link their accounts, they get personalized learning plans. Imagine how hard it is to convince families to support high standards and demanding assessments when their children don’t get personalized help as a result. Why would you do it? Why would you give a blood test or some other uncomfortable test to a large number of people without offering personalized support and attention following it?

That’s why we’re in such a dilemma. I think people’s frustration is not that standards are high or with what they’re learning about their students. What we haven’t done is given them the opportunities to make progress and to make college affordable.

The Every Student Succeeds Act (ESSA) calls on state education agencies and state boards to ramp up outreach to stakeholders in a way that is “timely and meaningful.” From parents to teachers to civil rights organizations and the business community, you’re doing that in conjunction with some of your redesigned programs. What advice would you give state boards and departments as they undertake stakeholder engagement?

Skip talking about test scores and start talking about concrete opportunities for young people. Talk about young women in computer science who are given the opportunity and are taking it to do advanced work in computer science and earn their future. Talk about how many students there are in your state who have great potential based on the PSAT/NMSQT and are not taking that opportunity. If you increase those numbers, you don’t just improve test scores, you get more kids ready and able to earn credit in college.

Talk about the number of young students in that state earning scholarships. Talk about how much productive practicing they’re actually doing on Khan Academy. And talk about the kids who used to fail or suffered a crisis of confidence who found that through practice they could get better.

If you talk about the number of schools that are failing and the test scores that are rising or decreasing without faces—without stories of young people—you’re going to lose the public. Second, talk about concrete opportunities kids can take. Keep your eye on all kids. What I mean by that is a little different from what it usually means: It must extend to the rural, white poor. It must extend to the working class, as well as the middle class, who are finding the cost of college really overwhelming.

Some asked, “Why don’t you make Khan Academy and test prep free for low-income families but not all families?” And I said no. The middle class is feeling so much pressure in unnecessary application fees; we’ve got to give them relief. We’ve got to look at military young...
Many people assume equity and excellence face off, but if you expand access to something, you don’t necessarily diminish its quality.

We spend a lot of time on data for students who are behind, but we spend far less time on the data that suggest where students might go if they are pushed a little further. Those data often languish when it comes time for scholarships. Are we getting those data out to scholarship organizations to propel those kids forward?

Another way data languishes is in access to personalized practice. I don’t think any young person in this country needs to be told that they are behind. What is much more helpful is working with a partner to give them a personal platform to advance. The power of data alone has been overestimated.

One group that we’ve been talking to is a group called the College Advising Corps. A lot of kids need advice in addition to data. The human element is so important.

When President Lyndon Johnson signed the first Elementary and Secondary Education Act in 1965, he said the twin aims of both the bill and federal intervention in education ought to be to ensure quality and equality for all students. How do we move that agenda forward?

ESSA offers a great opportunity for boards to continue to lead and advance equity and excellence. I’m excited for the opportunities it provides for NASBE members. It’s going to be a very exciting time. What’s sad is that many people assume equity and excellence face off, but if you expand access to something, you don’t necessarily diminish its quality. At the College Board, we have a great counterexample. During the last 10 years, we added over a million students to Advanced Placement. It went from being a small, elite program to a program that serves twice as many students. A researcher at the American Enterprise Institute called it the “single happiest education story of the century” because he found that even with the dramatic expansion of AP, there was no reduction in quality, even though many more students—and many more students from diverse backgrounds—were taking and passing AP. There are models to advance both equity and excellence, and I know that NASBE is interested in doing those two things together. What Advanced Placement is really all about is a shared sense of community and standards for excellence in those classrooms.
My elementary school, Mellette Grade School, was built in the 1880s. Each classroom had two electrical outlets, which certainly limited the technology teachers could use.

Not that there was much technology anyway. The only real supplements to textbooks were 16 mm films (shown on a clackety old projector) or filmstrips.

For those too young to remember filmstrips, think of them as a primitive precursor to today’s ubiquitous PowerPoints. Teachers threaded a thin strip of film into a projector about the size of a Buick. The audio part of the “audiovisual” was provided by a 33⅓ rpm record that beeped to indicate when it was time to advance to the next slide.

There were no TV monitors at our school, which was not a problem because there were only three TV channels anyway. As a rare treat, some teachers allowed us to listen to the last one or two games of the World Series on a portable radio someone had smuggled in. (Yes, the World Series used to be played during the day.)

When I became a teacher, I found that the technology available to me had not advanced much since my days at Mellette. The filmstrip audio track was now provided on a cassette tape, but there was still the awful beep to signal a slide change.

And the clackety old projector at my high school looked as though it had actually come from my grade school. Each year, I designated one kid in every class to get the film up and keep it running without stripping the perforated edges, thus rendering the film unplayable. I learned the hard way that nothing was worse than a room filled with 10th graders poised for a movie without anything to watch.

Today’s students and teachers have so many more opportunities to use technology to enhance learning. While field trip budgets still do not support a visit to Egypt to see the Pyramids, virtual reality glasses can transport the whole class. Internet links allow a class in London, Kentucky, to chat with counterparts in London, England.

The future is bright. We are so excited about the future of schools that we have devoted an entire issue of the Standard to exploring what lies ahead for students and teachers. From new approaches to helping students with disabilities to innovative ways to evaluate teachers, you’ll find much to discuss with your colleagues.

We hope those discussions continue through our 2016 Annual Conference in Kansas City. For the first time, state board members will have the opportunity to try out many of these innovative educational solutions (think of it as Show and Tell for adults!) at a session on the Future of Schooling. If you’ve always wanted to try virtual reality glasses, this will be your chance.

Of course, the changes won’t be limited to technology. We’ll talk about new approaches to testing and other future-looking changes that will come to schools soon.

An Amish proverb reminds us all that “children are living messages we send to a world we will not see.” The job of policymakers is to envision that future, as best we can, so we can equip the children who will actually live there.
THREE OPPORTUNITIES TO INCREASE THE IMPACT OF YOUR WORK ON STATE BOARDS OF EDUCATION

save the dates!

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at crown center
kansas city, mo
october 19–22, 2016

annual conference 2017
atlanta, ga
october 31–november 4, 2017
My state board of education is a NASBE member. So what do I get?

- **NATIONAL MEETINGS** held every year: Annual Conference, Legislative Conference, New State Board Member Institute
- **REGIONAL MEETINGS**, such as ones held recently in St. Louis on standards-based leadership and in Pittsburgh on science standards
- **CONVENINGS** of states that receive competitive NASBE grants
- **NASBE STAFF VISITS** tailored to the needs of specific state boards: on standards-based leadership, school climate, student data privacy, deeper learning, leadership development, board governance issues, strategic planning, and more
- **CONNECTIONS WITH EXPERTS** through publications such as the State Education Standard, webinars, e-newsletters, conference calls, and face-to-face meetings
- **NATIONAL VOICE** on federal education matters before the administration, Congress, and the US Department of Education
- **OPPORTUNITIES TO SERVE** on association committees and NASBE’s board

“We don’t know what we don’t know. In joining NASBE, I discovered what it meant ‘individually’ to be a responsible, accountable member of a state board of education and how ‘collectively’ we can be a more effective, efficient board in our state. I had the opportunity to network with knowledgeable individuals from all over the country on common issues and challenges and have built lasting friendships.”

—Gayle Manchin, past president, West Virginia Board of Education

Be NASBE. Be engaged.

Contact Kristen Amundson, NASBE’s executive director at kristen.amundson@nasbe.org, with membership questions.

www.nasbe.org