NCSL
NATIONAL CONFERENCE of STATE LEGISLATURES

No Time to Lose

How to Build a World-Class Education System State by State

AUGUST 2016

NCSL's Study Group on International Comparisons in Education

The National Conference of State Legislatures hosted a plenary session during its 2013 Fall Forum to discuss the results of the Organisation for Economic Co-operation and Development's (OECD) most recent survey of what 15-year-olds in industrialized countries could demonstrate about their knowledge of reading, mathematics and science. This survey is known as the Programme for International Student Assessment (PISA). Upon hearing of the disappointing performance of students in the U.S., officers of NCSL's Standing Committee on Education requested that NCSL launch a legislative study into international comparisons of high-performing education systems. They wanted to study other high-performing countries to learn which policies and practices were in place and what lessons the U.S. and individual states might learn from their success. They also wanted to learn about the consequences for our economy and quality of life if we failed to improve our standing.

A bipartisan group of 28 veteran legislators and legislative staff, along with several partners from the private sector, began an 18-month study in 2014. They focused on the highest performing countries on PISA to discover commonalities across their policies and practices. They met with education leaders from these countries, along with national and international experts who study their systems. They also visited several countries to see the differences firsthand.

This first report explains why there's no time to lose in rebuilding state education systems. However NCSL's study group still has questions—and surely the reader does too—about how to design and implement these systemic changes in the states. Where should legislators begin—teacher recruitment or preparation, standards, assessments, early learning? How should states realign their resources? Do some of these policies fit together better into an actionable package? There is still much to learn and discover.

The study group members will continue to meet through 2017 to find the answers to these and other questions by continuing to study and learn from other successful countries, as well as districts and states here in the U.S. Upon completion of our study, the study group will produce a policy roadmap that states can use to guide their reforms, as well as provide support to states ready to embark on these efforts.

EXECUTIVE SUMMARY

The bad news is most state education systems are falling dangerously behind the world in a number of international comparisons and on our own National Assessment of Educational Progress, leaving the United States overwhelmingly underprepared to succeed in the 21st century economy. The U.S. workforce, widely acknowledged to be the best educated in the world half a century ago, is now among the least well-educated in the world, according to recent studies. At this pace, we will struggle to compete economically against even developing nations, and our children will struggle to find jobs in the global economy.

States have found little success. Recent reforms have underperformed because of silver bullet strategies and piecemeal approaches. Meanwhile, high-performing countries implement policies and practices and build comprehensive systems that look drastically different from ours, leading them to the success that has eluded states. Pockets of improvement in a few districts or states is not enough to retain our country's global competitiveness.

The good news is, by studying these other high-performing systems, we are discovering what seems to work. Common elements are present in nearly every world-class education system, including a strong early education system, a reimagined and professionalized teacher workforce, robust career and technical education programs, and a comprehensive, aligned system of education. These elements are not found in the U.S. in a consistent, well-designed manner as they are found in high performers.

We have the ability to turn things around. Much higher-performing, yet less-developed countries—such as Poland and Singapore—have made significant progress developing their education systems in just a decade or two because they felt a strong sense of urgency. State policymakers, too, can get started right away to turn around our education system by taking immediate steps to:

- Build an Inclusive Team and Set Priorities.
- Study and Learn from Top Performers.
- Create a Shared Statewide Vision.

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- Benchmark Policies.
- Get Started on One Piece.
- Work Through "Messiness."
- Invest the Time.

We must directly face these challenges and begin immediately to reimagine and re-engineer our own education system. We must implement meaningful and comprehensive changes that will produce real results for our students.

State legislators must lead this work. Education is first and foremost a state responsibility. Each state can develop its own strategies for building a modern education system that is globally competitive, similar to the approach taken by other high-performing countries.

But we must begin now. There's no time to lose.

We cannot ignore the reality that most state education systems are falling dangerously behind the world, leaving the United States overwhelmingly underprepared to succeed in the 21st century economy.

The U.S. workforce, widely acknowledged to be the best educated in the world half a century ago, is now among the least well-educated, according to recent studies. At this pace, we will struggle to compete economically even against developing nations, and our children will struggle to find jobs in the global economy.

Despite their efforts, states have found little success because recent reforms have underperformed. Meanwhile, high-performing countries implement policies and practices and build comprehensive systems that look drastically different from ours, leading them to the success that has eluded states. Pockets of improvement in a few districts or states are not enough to retain our country's global competitiveness.

The good news is that we have the ability to turn things around. Much higher-performing, yet less-developed countries—such as Poland and Singapore—have made significant progress developing their education systems in just a decade or two, and most of their innovations came from right here in the U.S.

But we must begin now. There's no time to lose. We must directly face these challenges and begin immediately to reimagine and re-engineer our own education system. We must implement meaningful and comprehensive changes that will produce real results for our students.

Each state can develop its own strategies for building a modern education system that is globally competitive, similar to the approach taken by other high-performing countries. These countries did not copy each other; instead they borrowed and adapted ideas, many from the U.S., and customized their approach for their own unique context.

State legislators must be at the center of this discussion. Education is first and foremost a state responsibility. State legislators represent and can bring together the diverse viewpoints at the state and local levels that must be included in setting a vision and priorities for reforms. States must work together with local entities to design efforts that are practical and appropriate for each individual state. We will not be successful by allowing the federal government to set agendas and priorities.

The recent reauthorization of the Elementary and Secondary Education Act as the Every Student Succeeds Act (ESSA) moves federal education policy away from the top-down, punitive approach that has been in place since 2002. States now have more flexibility to reimagine their accountability systems, design interventions to improve instruction, and use federal resources to support students and schools in more flexible ways. At the same time, states will continue to have the data needed to monitor the performance of student subgroups, ensuring a focus on a high-quality education for all children.

ESSA provides an opportunity for states to ensure that all students have the knowledge, skills, abilities and behaviors to succeed in college and the workplace so that jobs stay in our states rather than going overseas. These changes represent both an opportunity and a challenge for states, and lessons from high-performing countries offer timely guidelines for states at this opportune time.

Building Consensus

It is unrealistic to expect that every person, group or interest will be 100 percent in favor of every idea or strategy. So, it might be wise to establish a threshold for support to move forward. For example, the group might adopt a "70 percent rule": An idea or decision is approved if 70 percent of the group is in favor.

HERE ARE STEPS THAT STATES CAN TAKE IMMEDIATELY.

Build an Inclusive Team and Set Priorities. State legislators cannot do this work alone. They must assemble a broad and diverse group that brings state and local policymakers, teachers, principals, superintendents, unions, business, parents and students into an inclusive process to set a vision for reform and identify priorities. State legislators know that it is very difficult to achieve agreement on reimagining and building a 21st century education system. But every person or group cannot get everything they want, so we recommend a different approach to achieving a collective and realistic vision: To build consensus, every stakeholder in the discussion is expected to put on the table a proposition giving them something they never thought they could get, in exchange for giving up something they never thought they would give up. In addition, it is unrealistic to expect that every person, group or interest will be 100 percent in favor of every idea or strategy. So, it might be wise to establish a threshold for support to move forward. For example, the group might adopt a "70 percent rule": An idea or decision is approved if 70 percent of the group is in favor.

Study and Learn From Top Performers. Every state should embark on a journey similar to that of the NCSL study group—a journey to discover the policies and practices of other high-performing countries. Reconsider much of what you think you know; abandon many ideas to which you have long been committed; and embrace new ideas, many which come from other countries but also those already implemented in many of our states. Study innovations in the states. Look hard at statewide data and be unafraid to compare your own state to other states and countries.

To build consensus, every stakeholder in the discussion is expected to put on the table a proposition giving them something they never thought they could get, in exchange for giving up something they never thought they would give up.

■ FROM THE STUDY GROUP

"Many states have implemented individual education reforms but have not accomplished the results hoped for. One of the most important lessons I have learned during this study is the value of having a well thought out and widely accepted vision that includes the coordination of multiple reforms to produce a world-class education system."

— State Senator John Ford, R-Okla.

Create a Shared Statewide Vision. Developing a shared long-term vision and setting goals to guide the work will be critical to the success of the effort. The vision becomes a guide for policymaking that transcends the shifts in politics or personalities. The vision becomes the North Star that continually guides the work. The journey will not be a short one, but a good roadmap—knowing where to go and developing the way there—means that policymakers will ultimately arrive at the desired destination.

Benchmark Policies. After establishing a shared vision, the state should consider benchmarking its education policies, practices and outcomes against those of high-performing countries and high-performing states. This helps to identify specific policies and implementation strategies for necessary shifts in policy and practice. An ongoing benchmarking process also allows the state to continually monitor its results.

Get Started on One Piece. After creating a comprehensive strategic plan, states should get started right away on a priority area of reform. Building a cohesive system does not mean states should wait to implement all pieces together, but rather understand and emphasize the connectedness of policy pieces. We urge states to move forward now to design and implement priority reform strategies, such as early literacy, teacher preparation, or college and career pathways. Identify an important early success that supports the state vision and the strategic plan, and use the success as momentum for continuous improvement.

Work Through "Messiness." In both high-performing countries and in successful reform efforts here in the U.S., the process of designing system-wide reform is always difficult and messy. There is no one recipe for success. The top performers took at least one step backward for every two steps forward, but continued to keep their eye on the goal to stay the course.

Invest the Time. States embarking on this process will find that they cannot tackle everything at once and will need to prioritize their work. We urge states to define these priorities as part of an inclusive process that first identifies a statewide vision and ensures that individual strategies are all needed parts for achieving statewide goals. States will begin this process at different places and will design different pathways. Achieving system-wide change will take time and will begin and end in different places in different states.

State policymakers can take these first action steps to quickly begin to move their states from mediocrity to excellence.

But first policymakers must face and understand the facts—the unfortunate state of our current education system. Then policymakers must understand the common elements found in world-class education systems.

Facing Facts: U.S. Students and Workers Struggle

POOR SCORES ON PISA

In 2000, the Organisation for Economic Co-operation and Development (OECD) embarked on its first international comparative study of what a sample of 15-year-olds can demonstrate about their knowledge in key areas including math, reading and science. [1] This assessment is known as the Programme

After all of the national, state and district reform efforts during the decade following No Child Left Behind, the U.S. was outperformed not only by a majority of the advanced industrial nations, but by a growing number of less-developed nations as well.

U.S. RANKING ON PISA

The Programme for International Student Assessment (PISA) is a comparative study of 15-year-old students' knowledge in key areas including math, reading and science.

YEAR (COUNTRIES TESTED)	U.S. RANKING		
	READING	MATH	SCIENCE
2000 (32)	15th	19th	14th
2003 (41)	18th	28th	22nd
2006 (57)	NR	34th	28th
2009 (65)	17th	30th	22nd
2012 (65)	24th	36th	28th

SOURCE: NATIONAL CENTER ON EDUCATION AND THE ECONOMY, CENTER ON INTERNATIONAL EDUCATION BENCHMARKING, 2013

■ FROM THE STUDY GROUP

"It's easy to say that the U.S. isn't Singapore or Finland so there's not much to learn from them. Well, 30 years ago, even Finland wasn't Finland. And some of the things they did such as improving teacher preparation is clearly something we can do irrespective of culture, homogeneity, diversity and so on."

— State Representative Roy Takumi, D-Hawaii

for International Student Assessment (PISA). Research has proven that a strong education system contributes directly to a strong economy. Understanding how strong education systems in industrialized countries are designed can help us uncover how they contribute to economic success and improve their citizens' quality of life.

In the first study, 32 highly-industrialized member countries participated. The U.S. ranked a disappointing 15th in reading, 19th in mathematics and 14th in science—right about in the middle of the countries surveyed. The initial results emboldened some U.S. policymakers to call for reforms, such as more testing and accountability and minimum qualifications for teachers. At the same time, the federal No Child Left Behind (NCLB) Act was enacted.

When the fifth survey was administered in 2012, the number of countries in the survey had grown to 65, and included less-developed countries. The news was worse for the U.S., which placed 24th in reading, 36th in mathematics and 28th in science. Again, our standing was in the middle of the countries surveyed. After all of the national, state and district reform efforts during the decade following NCLB, the U.S. was outperformed not only by a majority of the advanced industrial nations, but by a growing number of less-developed nations as well. [2]

POOR SCORES ON PIAAC

The OECD also administers another survey called the Survey of Adult Skills, which is part of its Programme for the International Assessment of Adult Competencies (PIAAC). It surveys adults ages 16 to 65 in numeracy, literacy and problem-solving. The results from the most recent survey, conducted in 33 nations, were released in 2013.

The Educational Testing Service (ETS) did a special analysis of the 2013 PIAAC data on millennials—those in the workforce ranging in age from teens to early 30s. They argued that this generation "will largely determine the shape of the American economic and social landscape of the future." ETS found that only the millennials in Spain and Italy scored lower on the PIAAC survey in reading than millennials in the U.S. In numeracy, U.S. millennials tied for last with Italy and Spain. In problem-solving, U.S. millennials again came in last among the 33 nations.

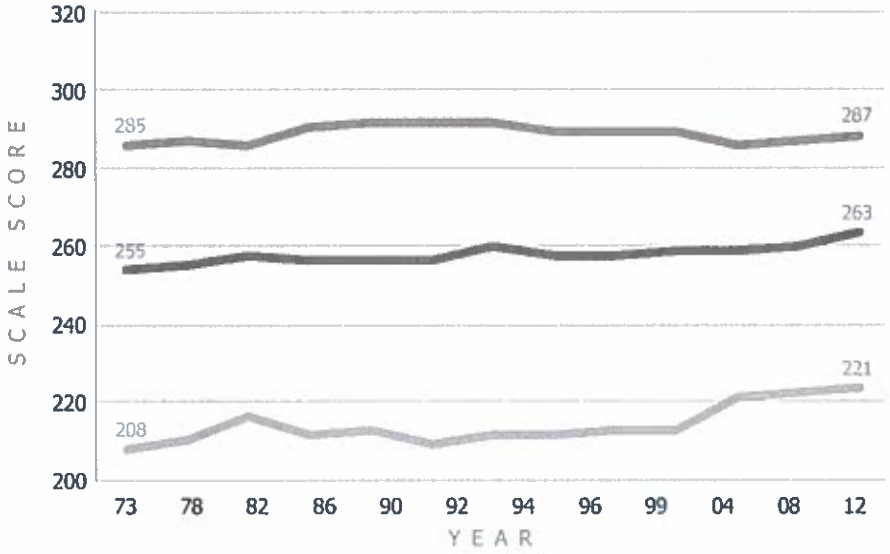
POOR PERFORMANCE ON OUR "NATION'S REPORT CARD"

Not only are U.S. students struggling to compete globally, they also struggle to meet the relatively low expectations set for students through our own "Nation's Report Card," or the National Assessment of Educational Progress (NAEP). For the four decades this assessment has been administered to students

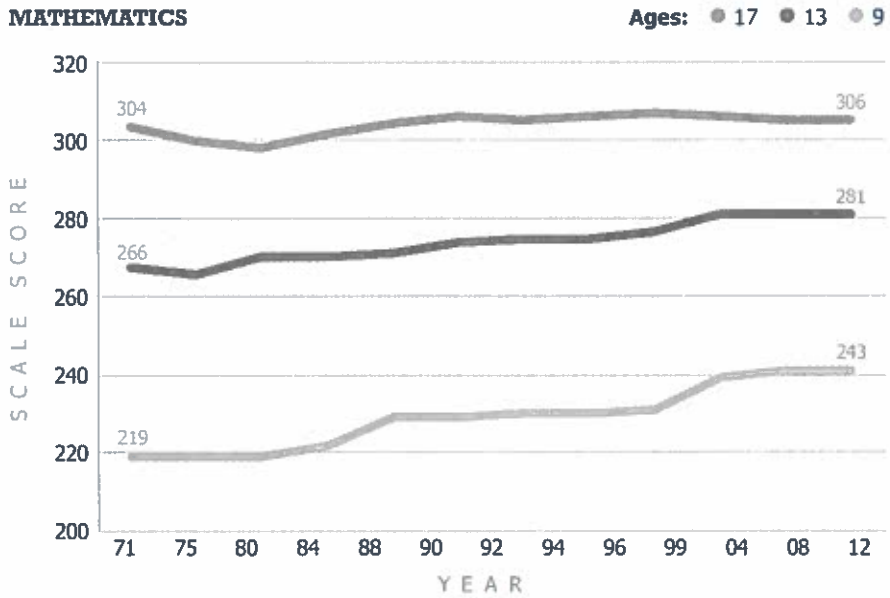
LONG-TERM NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS (NAEP) SCORES

Over the past four decades, high school students in the U.S. have made little progress according to the "Nation's Report Card," administered by the NAEP.

READING



MATHEMATICS



Source: National Center for Education Statistics (2012). Trends in Academic Progress

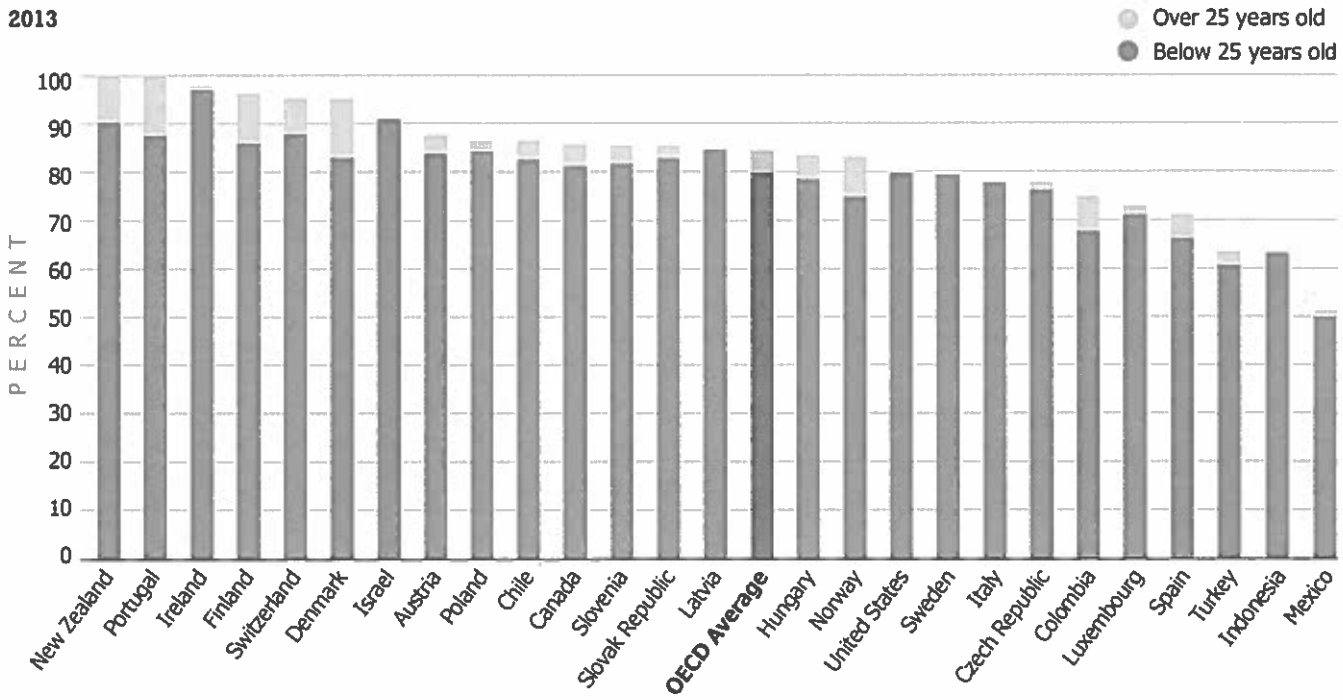
across the country, high school students have made little improvement.

INTERNATIONAL COMPARISONS ARE VALID

When these survey results were first released in the 2000s, many countries enacted sweeping changes to improve their education systems and drive economic development. They realized that they needed to turn their education systems around to compete in a global economy. Some in the U.S., however, explained away the results by criticizing the PISA and PIAAC methodology, denied that education results in other countries could be compared to those in this country, or argued that

UPPER SECONDARY GRADUATION RATES, 2013

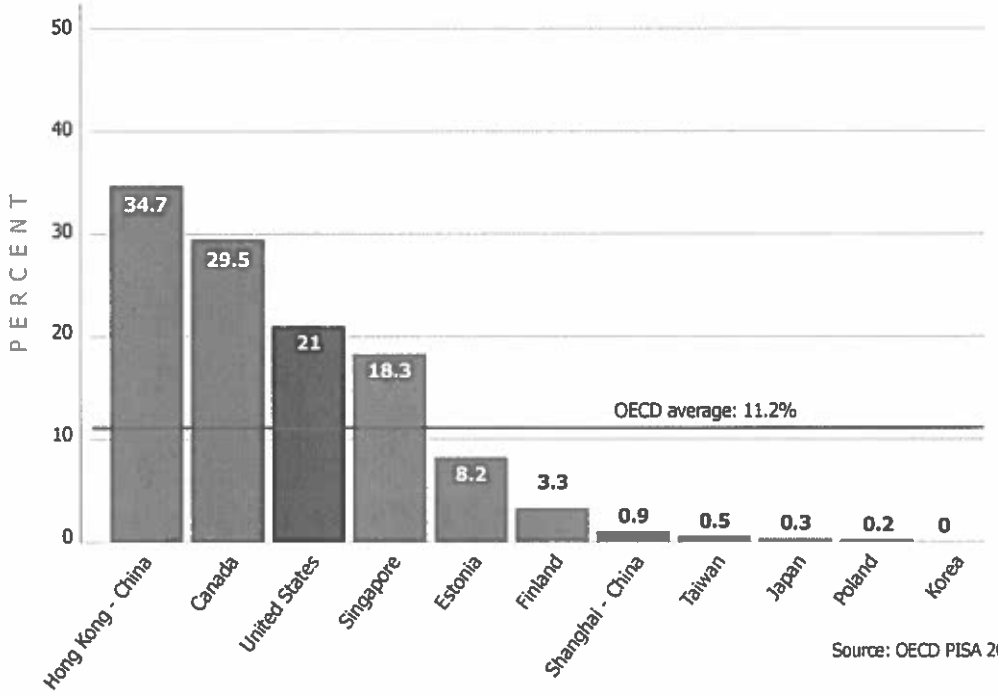
The OECD reports that the U.S. graduation rate is 80 percent, lower than most other high-performing countries. This dispels the assertion that other high-performing countries educate only their elite.



Source: OECD (2015), Education at a Glance 2015: OECD Indicators, OECD Publishing. http://dx.doi.org/10.1787/eag-2015-en, p. 48

PERCENT OF STUDENTS WHO ARE IMMIGRANTS

Europe and Asia have experienced an upsurge in immigration over the past several decades, and Asian countries have significant cultural, linguistic, ethnic and religious diversity.



Source: OECD PISA 2012

ELEMENTS OF A WORLD-CLASS EDUCATION SYSTEM

Children come to school ready to learn, and extra support is given to struggling students so that all have the opportunity to achieve high standards.

- Necessary resources ensure that all children enter the first grade with the cognitive and non-cognitive skills needed to master a first-grade curriculum set to high standards.
- Once students are in school, resources are distributed so that students who may find it harder to meet high standards will be given the extra resources—especially highly effective teachers—they need to succeed.

A world-class teaching profession supports a world-class instructional system, where every student has access to highly effective teachers and is expected to succeed.

- The highly professional teaching force is well-prepared, well-compensated and well-supported throughout their careers.
- Teachers support a well-designed instruction system that includes high standards for learning, a core curriculum created by world-class teachers, and high-quality assessments designed to measure complex skills demanded by the standards and curriculum.
- All students are expected to be ready for college and career, and all educators are expected to get them there.

A highly effective, intellectually rigorous system of career and technical education is available to those preferring an applied education.

- A powerful, hands-on applied curriculum is built, requiring strong academic skills.
- The system has no "dead ends," and pathways to university are clear and always available.
- Schools partner with employers to ensure that high standards are set for the students and provide on-the-job training and learning opportunities to enable them to reach those standards.

Individual reforms are connected and aligned as parts of a clearly planned and carefully designed comprehensive system.

- All policies and practices are developed to support the larger education system.
- The coherent system of education is designed to ensure that every student meets the same goal of college and career readiness.

international comparisons are irrelevant. This criticism continues even today as the United States falls further and further behind.

The NCSL study group's conclusions were very different. They found that U.S. students' poor performance cannot easily be explained away. For example, critics assert that the U.S. educates all students while the other high-performing countries educate only their elite. But graduation rates dispel this assertion. The OECD reports that the U.S. graduation rate is 80 percent, lower than most other high-performing countries.

Critics also assert that the U.S. is more diverse than other countries and, as a result, faces challenges that others do not. This may have been true in the past, but it is not the case today. Both Europe and Asia have experienced an upsurge in immigration over the past several decades. The same is true of Canada. A greater proportion of Canadian students was born outside Canada than the proportion of U.S. students born outside the U.S. Furthermore, Asian countries have significantly more cultural, linguistic, ethnic and religious diversity than many Americans often suppose. For example, Singapore has three main ethnic groups (Chinese, Malay and Indian), four national languages (Mandarin, Malay, Tamil and English) and a host of major religions, including Buddhism, Islam, Christianity, Hinduism, Sikhism, Taoism and Confucianism.

Facing Facts: U.S. Policymakers Struggle to Find Silver Bullet

Over the past several decades, policymakers in the U.S. have worried about flat test scores and fledgling international competitiveness. In an effort to boost achievement for all students, policymakers have tried a number of approaches and passed a number of state and federal laws. These have included increasing funding, reducing class size, enhancing school choice, improving school technology and teacher quality, more testing and tougher test-based accountability. While some policies have had marginal success in some states or districts, success has not been as widespread as policymakers had hoped.

■ FROM THE STUDY GROUP

"Every championship team, no matter what sport, knows the fundamentals of the game and practices those relentlessly. I believe we have identified the fundamentals of education that are necessary to succeed in preparing our children to be internationally competitive in today's changing economy. It is imperative that we acknowledge and adopt those fundamentals if we are to be champions in education again."

— State Senator Luther Olsen, R-Wisc.

The only policy approach developed by both U.S. states and top-performing countries is high academic standards. But all of the top-performing countries have coupled developing such standards with a curriculum framework, specific curriculum and well-aligned, high-quality, essay-based assessments in seamless instructional systems. Most states have yet to move in this direction, and implementation of rigorous standards has been haphazard at best.

In retrospect, the NCSL study group concludes that states have tried to find individual "silver bullets" without setting decisive goals and creating a thoughtful, systemic approach to building a coherent system with an appropriate timeline for implementation, as did the other high-performing countries. Examples of states' piecemeal approaches include:

- Increasing teacher pay without demanding better preparation
- Improving early education without continuing supports for struggling students in K-12
- Increasing funding without first shifting funds from unproven strategies
- Decreasing class size without first restructuring staffing and time
- Using test scores in teacher evaluations without ensuring that all teachers are receiving job-embedded, high-quality, ongoing learning

This "silver bullet" approach is not what the study group found in high-performing countries. They do not look to single policy shifts to improve student outcomes. Instead, they have created a coherent system of education within which all policies and practices are designed to lead to high performance.

TOP PERFORMERS: HOW THEY BECAME THE BEST IN THE WORLD

As NCSL's study group talked with experts from around the world and visited several top-performing countries, they confirmed what others had found—there are common elements that make up the design of world-class education systems. These elements are widely credited for their rapid rise in student achievement.

Element #1: Children come to school ready to learn, and extra support is given to struggling students so that all have the opportunity to achieve high standards.

The top-performing countries ensure that children arrive at school ready to learn. The responsibility for this varies among the countries. For example, in high-performing countries with a large proportion of women in the workforce, the government typically provides support to families with young children. In other countries, however, the responsibility falls on families—often extended families—and the community.

Once students in top-performing countries are in school, those who struggle receive extra help ... More teachers are typically allocated to such schools, with the best teachers serving in the most challenged ones. Inversely, American students from the wealthiest communities are most likely to get the best teachers and the finest facilities.

THE TEN REGIONS STUDIED

1. Alberta, Canada
2. Estonia
3. Finland
4. Hong Kong, China
5. Ontario, Canada
6. Japan
7. Poland
8. Shanghai, China
9. Singapore
10. Taiwan

In both situations, society places a high priority on making sure that children are in good health and prepared to learn. In most cases, if the families cannot or will not provide these supports to children, then society steps in. These supports often continue after children begin school.

In the United States, children in poverty now account for about a quarter of all children in public schools. Large numbers of American children enter first grade with disadvantages that may overwhelm the school's capacity to provide an adequate education. Because high-performing countries provide supports to ensure that children are ready for school, their schools typically do not face similar challenges.[5]

Once students in top-performing countries are in school, those who struggle receive extra help to reach the same high standards other students will reach more easily. Providing additional resources to schools serving dis-

advantaged, struggling students is a priority. More teachers are typically allocated to such schools, with the best teachers serving in the most challenged ones. Resources are also reallocated within schools to reach those most in need of extra support. These countries demonstrate that, with added support, struggling students can meet high expectations. Inversely, American students from the wealthiest communities are most likely to get the best teachers and the finest facilities because of the way we structure our finance systems.

Once teachers exit a preparation program in top-performing countries, they are expected to be the best in the world and experts in their craft. American programs typically have lower standards for entrance and exit, overproduce elementary education teachers, and struggle to produce teachers in high-demand fields, such as special education and science, technology, engineering and math.

Element #2: A world-class teaching profession supports a world-class instructional system, where every student has access to highly effective teachers and is expected to succeed.

When the top performers committed to bringing all students to achievement levels formerly reached only by their elites, they also committed to providing all students with access to high-quality teachers. They raised the rigor, expectations, structure and status of the teaching profession and compensated those who were willing to meet the challenge of this reimagined career path.

These goals led the top-performing countries to adopt a different set of tightly linked policies and practices than those enacted in the U.S. While some of these approaches have been tried here, no comprehensive set of policies and practices that raise the teaching profession to the heights seen in high-performing countries has been adopted across any state.

■ **Selective Recruitment.** The top-performing countries have a rigorous set of criteria for determining a candidate's eligibility for teacher preparation, including an entrance exam that few pass. Often teacher candidates are recruited from the top quarter of high school graduates. This is not a typical practice in the U.S.

In high-performing countries, teachers are compensated more generously than American teachers, typically earning pay similar to that of senior civil servants and professionals such as engineers and accountants. They are expected to be the best in the world and are compensated accordingly.

■ **Rigorous Preparation and Licensure.** Most teacher preparation programs in top-performing countries are based in prestigious research universities that are more selective and rigorous than U.S. programs. Teaching programs know and produce the number and types of teachers needed to fill vacancies each year, so admission is quite competitive. Programs require mastery of subjects to be taught and often include clinical practice that can take significantly longer to complete than teacher induction programs in the U.S. There are no approved alternative routes to licensure like those in the states, which enable professionals to become teachers with only a few weeks or months of training.

Once teachers exit a preparation program in top-performing countries, they are expected to be the best in the world and experts in their craft. American programs typically have lower standards for entrance and exit, overproduce elementary education teachers, and struggle to produce teachers in high-demand fields, such as special education and science, technology, engineering and math (STEM).

■ **Thorough Induction.** Either during preparation or upon entering the teaching workforce, new teachers in high-performing countries are expected to serve apprenticeships with officially designated, well-trained master teachers. During the first year of this induction, beginning teachers typically have a greatly reduced workload. Teachers must complete the induction before they receive what we would call "tenure." While induction and mentoring policies have been enacted in many states, these programs often lack quality, rigor and authenticity in implementation.

■ FROM THE STUDY GROUP

"In several of the countries studied, teaching is regarded as an honorable and respected profession, comparable to medicine and law, and not a burden on the local property tax."

— State Representative Mary Stuart Gile, D-N.H.

■ **Career Ladders or Lattices.** High-performing countries create a variety of roles for teachers in the schools so they can use their expertise to improve teaching and learning and, at the same time, offer an exciting career in education. These may include leadership roles that offer experienced teachers incentives to remain in the profession, hone and receive rewards for their unique skills, and better support students and colleagues.

■ **Professional Work Environment.** High-performing countries have redesigned their schools and the overall work environment to maximize the success of teachers and students. For example, teachers are given a lighter teaching load and more time for their own—and their colleagues'—development. In some of these countries, 30 percent to 35 percent of a teacher's time is spent teaching students, while the rest is spent on activities such as working in teams with other teachers to develop and improve lessons, observing and critiquing classes, and working with struggling students.[6] Teacher evaluation, promotion and pay takes into consideration teachers' performance in teams and their progress as they become experts in their craft.

Schools and classrooms are organized differently so that several teachers, perhaps even a group, have responsibility for a classroom. When not working directly with students, teachers are rewriting curriculum and assessments to meet the needs of their students and to meet high student performance expectations. Teachers also counsel and train each other, constantly observing, evaluating and improving their practices. Because they are trained to be experts at their craft, teachers push themselves, their colleagues and their students to be the best in the world. This highly professional work environment is uncommon in the U.S.

NCSL study group members watch students work together during a math lesson in a Shanghai elementary school.

■ **High-Quality Professional School Leaders.** In high-performing countries, the school leader is highly trained and carefully selected. In Singapore, for example, only teachers who have been trained in its highly rigorous system and have already served in a variety of school settings can become principals. Principals receive training in curriculum, instruction and school administration. School leaders interact regularly and in great depth with their teachers. In the U.S., although it is understood that great schools require great leaders, recruitment, selection and training systems that foster such leadership have not been uniformly developed.

■ **Higher Compensation.** In high-performing countries, teachers are compensated more generously than American teachers, typically earning pay similar to that of senior civil servants and professionals such as engineers and accountants. They are expected to be the best in the world and are compensated accordingly. Many nations view their teachers as "nation builders," preparing the country's next generation. Some countries have variable pay scales tied to career ladders or lattices that acknowledge the various teaching roles, leadership responsibilities and subject mastery. These countries have managed to increase pay by reallocating resources from policies and practices they found to be less effective.

■ FROM THE STUDY GROUP

"High-performing countries have consciously decided to prioritize education over testing."

— State Senator Joyce Elliott, D-Ark.

■ **World-Class Instructional Systems.** To guide and support effective teaching and learning, all of the top-performing countries have developed internationally benchmarked standards that specify what students should know and be able to do in language arts, mathematics, science and all required subjects in the curriculum. Increasingly, these include both high-level complex cognitive skills and non-cognitive skills, such as ethical behavior, framing and completing tasks, teamwork and leadership. Top performers develop curriculum frameworks based on these high standards and specify the order in which concepts should be taught, either by grade or grade span, thereby creating a clear path to student mastery. Corresponding course syl-

labi specify learning objectives, topics to be covered, materials to be used, appropriate assessments, and papers and projects to be completed. They do not include lesson plans because teachers are expected to develop them guided by the syllabi and curriculum framework. Policymakers in these countries assume that if the teachers know the desired outcomes, they are skilled enough to prepare lessons that will enable their students to master that material.

The top performers also prepare assessments that are designed to find out whether students have mastered material in the syllabi. Because the syllabi specify high-level complex skills, the assessments typically contain few multiple-choice, computer-scored prompts, since that type of assessment does not effectively measure high-level skills. These assessments are typically essay-based and scored by humans, so the high-performing countries spend more than states on assessments. They are not administered annually, however, but instead at key transition points in a student's academic career. Similar to teacher pay, these countries prioritize this investment as a small fraction of the total cost of their education system, knowing that cheaper, less effective, less rigorous assessments will not lead to world-class teaching or high student achievement.

Career and technical education (CTE) is not perceived as a route for students lacking strong academic skills, but as another approach to education, skills development and good jobs. CTE is well-funded, academically challenging and aligned with real workforce needs.

Element #3: A highly effective, intellectually rigorous system of career and technical education is available to those preferring an applied education.

Interest in career and technical education (CTE) is emerging in many top-performing countries as a strategy to boost the national economy and offer a high standard of living and attractive careers to a broader constituency. Singapore and Switzerland, in particular, have built strong systems of CTE with close ties to industry. Singapore uses a school-based model and Switzerland uses an employer-based model.[7] In these countries, CTE is not perceived as a route for students lacking strong academic skills, but as another approach to education, skills development and good jobs. CTE is well funded, academically challenging and aligned with real workforce needs. It is hands-on, attractive to students and parents, and can lead to university for students who may seek professional and managerial positions later. For other students, CTE is a pathway to good jobs, by building technical skills that can be achieved much earlier than the traditional academic experience.

On the other hand, the U.S. has experienced a steady decline in CTE over the last few decades. This has become a challenge for American employers struggling to find skilled workers and for students desiring an applied education or a streamlined entrance into the workforce. Although a number of states have impressive CTE schools or particular programs, very few have an entire CTE system that provides the kind and quality of opportunities available to students in top-performing systems. Community colleges are particularly well positioned in the states to link workforce needs to credentials and certificates.

Element #4: Individual reforms are connected and aligned as parts of a clearly planned and carefully designed comprehensive system.

Top performing countries have adopted a comprehensive, systemic approach to building world-class education systems. They understand that success is not achieved by adopting only one or two "silver bullet" policies; instead, these countries have reimagined and re-engineered their entire systems. Typically, this vision is established at the national level with the ministry of education, while states or provinces are charged with implementation. This is not dissimilar to how states can enact reform: with a clear vision at the state level, while local entities are responsible for implementation.

For example, the top-performing countries

Success is not achieved by adopting only one or two "silver bullet" policies ... Top-performing countries understand that schools will struggle without high-quality early childhood education and that high-quality early childhood education will not be a wise investment unless followed by high-quality instruction in the schools. They also understand that increasing teacher pay without rethinking the pool of teaching applicants may be unwise unless preparation programs are more rigorous. Likewise, they realize that a more rigorous program is pointless without creating a more attractive teaching profession.

understand that schools will struggle without high-quality early childhood education and that high-quality early childhood education will not be a wise investment unless followed by high-quality instruction in the schools. They also understand that increasing teacher pay without rethinking the pool of teaching applicants may be unwise unless preparation programs are more rigorous. Likewise, they realize that a more rigorous program is pointless without creating a more attractive teaching profession.

Unlike top-performing countries, states commonly take a piecemeal approach, where policymakers fail to set overarching goals for the education system and instead experiment with individual strategies that can sometimes change from year to year. States have designed and implemented many different education reform policies that are not always connected and consequently do not have the desired impact.

Clearly, a decentralized system of education governance exists and is traditionally preferred in the U.S., where state and local boards, agencies, governors and legislatures all control and often set differing priorities for their own systems. Parents, teachers and students are frustrated with reform efforts that come and go, leaving them with a system built on an ever-shifting foundation.

States are well-positioned to instead create the kind of clear vision and systemic reform that high-performing countries do. State systems more closely resemble education governance in the high-performing countries. With input from stakeholders, state legislatures, state boards of education, governors and state education agencies can agree to a clear vision for the state and allow local entities to implement specific strategies.

An Urgent Call to Action: It's Up To States

As state legislators, it is our responsibility to provide our citizens with a world-class education. We cannot let another generation settle for anything less. Our future workforce, national defense, economic vitality and democratic foundation depend on our ability and willingness to get this done.

If we assemble the best minds in policy and practice, implement what we know works, and commit ourselves to the time, effort and resources needed to make monumental changes, we can once again be among the best education systems in the world. If they can do it, so can we. But there's no time to lose.

Profiles: A Closer Look at Three High-Performing Education Systems

FINLAND

People everywhere have heard about Finland—this Scandinavian country of 5.3 million is a world leader in education. It is easy to suggest that any small country can achieve outstanding results, but the Finland story and experience are much more than that. Finland's strong system was built from the ground up in the 1970s as leaders viewed outstanding education as the ticket to a strong economy and international competitiveness.

Visitors to Finland often talk about the beautiful school buildings. Inside the classroom, you rarely find teachers lecturing to students in rows of desks. Rather, Finland prides itself on self-directed students. Students take charge of their learning activities—by consulting with teachers and developing a specific lesson plan that may involve individual work and group work. Finland's schools are devoted to being full service, meaning they offer student and family health services, counseling, transportation and meals.

The three-tiered system features early education (ages 1-7), comprehensive schools (ages 7-16) and senior secondary schools (ages 16-19). At that point students move either to the university or to vocational schools and apprenticeship training.

Schools are small with small classes (about 20 students per class). There is a national core curriculum that lays out what students are expected to learn and be able to do and the topics that should be taught at each grade level, but teachers have wide flexibility to design lessons and assessments.

The hallmark of Finland's system is its exceptional teachers. Many scholars look to the investment in teacher education as the MOST important factor in Finland's success. Only 10 percent of those who apply are admitted into teacher education. The preparation program is a five-year, combined bachelor's and master's degree program and is free with a stipend for living expenses. Students learn both teaching and research skills. There is an emphasis on using research-based, state-of-the-art practices and including clinical experiences in a school associated with a university over the five year program. All teachers hold a master's degrees in education with a minor in two content areas in which they will teach. Schools provide time for regular collaboration among teachers—at least one afternoon each week—and opportunities for ongoing professional development.

There is a national core curriculum in Finland, but no national test or other method for monitoring school performance. There is a national matriculation exam at the end of upper secondary school, but the function is to assess what the student knows, not the quality of the school. Teachers have much autonomy in their everyday work. Finnish scholar Pasi Sahlberg refers to this as "balanced centralization and decentralization." The Finns suggest that this system provides for maximum innovation and creativity at the school level and allows for teachers to be accountable for overall school performance. There is no mechanism for using student tests to measure individual school performance; however, Finland does have a schools' "inspectorate" who regularly visits schools and provides feedback to help them improve.

Over the years, Finland has become a more diverse country as immigration has increased. More than 99 percent of students successfully complete compulsory basic education and about 90 percent complete upper secondary school.

Finland prides itself on providing equity of opportunity to learn and inclusion. Resources are directed to the most high-need students and schools. Students with special needs are often mainstreamed in regular classrooms but receive significant additional support. Ninety-eight percent of the cost of education is covered by government.

ONTARIO

Canada has been a strong performer in the world education arena since 2000, and Ontario in particular is known for its educational gains. Ontario is Canada's second largest province—larger than France and Spain combined—with a very large system, educating about 40 percent of the country's 5 million students. Ontario has nearly 5,000 schools, with an average size of about 415 students. Average class size is 22. Ontario has a very diverse student population as Canada's immigration rate is among the highest in the world. About one-fourth of Ontario students were born outside Canada. As a result, Ontario's hallmark is its strong appreciation of the diversity of its students and devotion to and value of immigrant children. Students learn about diverse histories, cultures and perspectives in order to build tolerance.

In addition, a centerpiece of Ontario's strategy has been capacity. Regional teams of education leaders with significant experience in teaching, leadership and coaching work in partnership with schools and districts to support improvement within diverse contexts. Under-performing schools and students are constantly targeted for additional supports. There is a strategy for identifying potential dropouts early and providing them with additional support to succeed. Teams of teachers and counselors work together to provide initial support and track progress. Special attention devoted to at-risk students and specialized teachers helped raise the high school graduation rate from 68 percent to 82 percent.

Ontario also promotes parent engagement by actively seeking parents to help and advise schools. Ontario promotes healthy schools with a standard 20 minutes of moderate to vigorous physical activity each day. It also promotes safe schools. A continuum of interventions, support and consequences work to reinforce positive behavior for students to make good choices.

Ontario provides full-day kindergarten for 4-year-olds and 5-year-olds to establish a strong foundation and a smooth transition to the first grade. Students begin in grade seven to think about career development and pathways.

There is no federal education ministry. Each of the provinces (and three territorial governments) is responsible for developing curriculum and determining major education policies and initiatives. Teacher certification is governed by the Ontario College of Teachers. Teachers must have completed at least a three-year postsecondary degree in a content area and then apply to and complete one year of a teacher education program to be certified to teach. There is a culture at the school level of teachers as innovators. Ontario values teachers being risk takers to identify new and promising practices and foster creativity and responsibility. Teachers also use evidence at all levels to inform strategies and actions and participate in collaborative learning teams.

SINGAPORE

Singapore is a very young country and had the advantage of designing an education system from scratch 50 years ago. Singapore split from the United Kingdom in 1963 and became part of Malaysia, and two years later became its own sovereign city-state. Singapore's founding leaders saw people as its most important resource and understood that education was the answer to political and economic survival. Visitors to Singapore remark about its cleanliness and the beautiful gardens—all strategically planned to make people happy. Although it is a city-state with a population of 5.4 million, it is comparable in size to several of our own states.

The center of Singapore's education success is its high-quality educators. Teachers are valued at a level on par with doctors and lawyers. There is only one teacher preparation institute—the National Institute of Education (NIE)—which is housed at a research university. The NIE works closely with the Ministry of Education so that state policy and practice are tightly linked. Prospective teachers are recruited from the top 30 percent of the secondary school graduating class by panels that include current principals. The NIE receives an average of eight applications for every opening. Students accepted receive free tuition and a monthly allowance. New teachers are observed and coached and given ongoing professional development as part of a required and heavily structured induction program.

Once teachers begin their career, they are allotted 100 hours of professional development (largely school-based) per year so they can constantly improve their practice. Every school has a fund to support teacher growth that may include opportunities to study abroad to learn about various aspects of education in other countries. Peer-to-peer learning also is promoted through teacher networks and professional learning communities.

Teacher performance is appraised annually against 16 competencies, which include contribution to students' academic and character development, collaboration with parents and community groups, and contribution to colleagues and the school as a whole. After three years of teaching, they are assessed annually to see which of three career paths—master teacher, curriculum or research specialist, or school leader—would best suit them.

Schools are large, but teachers are regularly engaged with each other through classroom observations, collaborative professional development, and group lesson planning. The principal, who is always a former teacher, is actively engaged in both school management and teaching.

In addition to a Primary School Leaving Exam that must be passed before a student moves into lower secondary school, students take a high-stakes test at the end of secondary school. Students and parents are well aware of the importance of the test, which tracks students into the career/technical pathway or the university pathway. Career/technical students in Singapore are not viewed as second-class citizens; rather, the schools are highly modern and advanced with a devoted faculty and work closely with industry in designing specific high-quality programs.

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Study Group Meetings

Overview of International Education Comparisons
September 3-6, 2014 | Boston, MA

Introduction to PISA and Researching International Education Systems
October 2, 2014 | Webinar

Preliminary Findings and Reflections From Members' Own Benchmarking Research
December 12-13, 2014 | Washington, DC

Accountability Systems of High Performing Countries
February 23, 2015 | Webinar

Getting the Right Incentives: Designing a Coherent, Highly Functioning Education System
April 17-19, 2015 | Chicago, IL

Evaluating State Policies on the 9 Building Blocks of a World-Class State Education System
May 29, 2015 | Webinar

Implementing and Communicating System-Wide Reform in Top Performing Jurisdictions
July 8-9, 2015 | Park City, UT

Current State Examples of System-Wide Reform: Kentucky and Delaware
August 2-3, 2015 | Seattle, WA

A Teacher's View on International Comparisons and Communications Strategies for Study Group Recommendation
December 11-12, 2015 | Washington, D.C.

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- *The Phoenix: Vocational Education and Training in Singapore.* National Center on Education and the Economy, 2012. http://www.ncee.org/wp-content/uploads/2014/01/The-Phoenix1-7.pdf. In this report, a team of researchers traces the evolution of Singapore's vocational education system and analyzes what accounts for its success.

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- Ministry of Education (2013). *Education in Taiwan 2013-2014.* This brochure from the Ministry provides an overview of the system structure, governance, upcoming reforms, teacher education, and vocational education and training.
- Ministry of Education (2011). *Technical and Vocational Education in Taiwan, ROC.* This brief dives into the structure, governance, curriculum, and enrollment of Taiwan's vocational education system.
- Ministry of Education (2008). *Administrative Plan – Intelligent Taiwan Manpower Cultivation Project.* This administrative plan outlines implementation of a substantial five-year allocation to education and employment initiatives, including a multimillion-dollar investment in new reading programs.
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- Pan & Chen (2011). *Teacher Evaluation as a Catalyst for Organizational Learning.* This article shows how Taiwan uses teacher evaluation as a tool for continuous improvement and the basis for regular professional learning community meetings among school staff.

Notes

1 For more information about the OECD PISA exam, including who participates and how the test is administered and scored, visit www.oecd.org/pisa/aboutpisa/.

2 For OECD's summary of findings and implications for the U.S., see http://www.oecd.org/unitedstates/PISA-2012-results-US.pdf.

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5 OECD (2011), *Starting Strong III: A Quality Toolbox for Early Childhood Education and Care*, OECD Publishing, Paris. Retrieved from dx.doi.org/10.1787/9789264123564-en.

6 Jensen, B., Sonnemann, J., Roberts-Hull, K., & Hunter, A. (2016). "Beyond PD: Teacher Professional Learning in High-Performing Systems." Washington, DC: National Center on Education and the Economy, p. 28. Retrieved from www.ncee.org/wp-content/uploads/2015/08/BeyondPDWeb.pdf; and Darling-Hammond, L., Chung Wei, R., Andree, A. (2010). "How High-Achieving Countries Develop Great Teachers." Stanford: Stanford Center for Opportunity Policy in Education, p. 3. Retrieved from edpolicy.stanford.edu/sites/default/files/publications/how-high-achieving-countries-develop-great-teachers.pdf

7 Gold Standard: The Swiss Vocational Education and Training System, March 2015, National Center on Education and the Economy
The Phoenix: Vocational Education and Training in Singapore, October 2012, National Center on Education and the Economy

What People are Saying

"We invested in this working group because we believe having a world view on education systems can give policy makers a clearer perspective on the central role education can and should play in civil society. This work has also proved to us something we've believed for a long time, when teaching is treated as a revered profession, great things are possible."

Daaiyah Bilal-Threats,
National Education Association

"This diverse and bipartisan Study Group of state legislators discovered that top-performing countries have built their successful education system around a strong teaching profession. This includes recruitment of top students, rigorous preparation, meaningful professional development and empowerment of teachers to guide their own profession. This is THE cornerstone of their reforms and their success, and this should be a huge lesson for the states."

Linda Darling Hammond, Charles E. Ducommun Professor of Education; Stanford Graduate School of Education and President and CEO, Learning Policy Institute

"The NCSL report makes a compelling case for state legislators to act now on improving the outcomes their education system is producing today. The ability of U.S. students to compete on a global stage requires state legislators to use data as the backbone of their agenda for improving outcomes. The NCSL report provides a roadmap for addressing the key elements of a state policy agenda that are essential to ensuring every student is college and career ready."

John Engler,
President, Business Roundtable

"The National Conference of State Legislature's *No Time to Lose* presents timely and valuable analyses and recommendations for transforming American education and training. The report stresses the importance of world-class learning systems for maintaining and improving economic, social, and political welfare in a much more competitive and knowledge-intensive world. Several features make *No Time to Lose* a valuable and timely report:

- It is not only based on solid academic research but, following the example of almost all successful American institutions, benchmarks international best practice.
- The report is addressed primarily to states, currently the most important level of government for transforming schools and other learning systems, though all public and private institutions have important roles to play in this important enterprise."

Ray Marshall, Professor Emeritus of the Audre and Bernard Rapoport Centennial Chair in Economics and Public Affairs at the University of Texas at Austin and former U.S. Secretary of Labor

"Our students deserve the best and we must pursue the best educational practices whether they are found in the United States or around the world. This report is chock full of the best lessons of what works from other countries. We should use this research to inform our work. In that way we can provide our students with the greatest possible chance at success."

Christianne Y. Runge, Director, Public Employees Division, American Federation of Teachers

"This hard-hitting, refreshingly honest report is a bipartisan clarion call for a very different definition of 'education reform' than the one that has dominated the American political landscape for years. The country will ignore it at its peril."

Marc Tucker,
President and CEO, National Center on Education and the Economy

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