Commission on Innovation and Excellence in Education

William E. Kirwan, Chair

Agenda

Session 1 and Session 2

December 20, 2017
9:30 a.m.-5:00 p.m.
120 House Office Building, Annapolis, Maryland

9:30 a.m. **Chair's Opening Remarks**

9:35 a.m. **Building Blocks 5, 6, and 8 – Review Revised Draft Recommendations and Finalize**

9:50 a.m. **Building Block 3, 4, and 7 – Review Revised Draft Recommendations and Finalize**

10:15 a.m. **Building Block 2 – Review Revised Draft Recommendations and Discuss/Finalize**

10:40 a.m. **Building Block 1 – Review Draft Recommendations and Discuss**

12:30 p.m. **Lunch**

Lunch Provided for Commissioners and Staff in Room 180

1:15 p.m. **Building Block 9 – Review Draft Recommendations and**

Discuss 5:00 p.m. **Chair's Closing Remarks and Adjournment**

Next Meeting: ***Monday, January 8, 2017, 9:30 a.m.-5 p.m.***

Building Block # 5: Abundant supply of highly qualified teachers

SUMMARY OF GAP ANALYSIS AND RECOMMENDATIONS

Ensure that Students Selected By Maryland Universities for Teacher Training Are Comparable in Quality to Those in the Top Performing Countries

The top performing countries recruit prospective teachers from the upper academic ranks of the college-bound graduating cohort: the top 50 percent in Shanghai, 33 percent in Singapore, 30 percent in Ontario, and 25 percent in Finland. In Maryland, as in most other states, there are few policies in place to influence selectivity in the admission of students to teacher preparation programs. For example, while the University of Maryland, College Park Campus (UMCP) and Towson University both require a 3.0 minimum GPA for candidates, the academic record of the high school students going into teacher education at UMCP are among the lowest of those going into any professional preparation program, and, alarmingly, only a handful of students among the thousands entering these two universities every year elect to prepare themselves to be teachers: fewer than 50 students out of more than 4,000 at UMCP and about 150 students out of about 3,500 at Towson. These policies and the data on students admitted to teacher preparation programs in the State fall far short of the policies typical in the top performing countries. [Supplement with MLDS data in January when we have data for both public and private]

It is very hard to get into teacher preparation programs in the top performing countries. In Finland, it is harder to get into such programs than it is to get into law school. The proportion of acceptances to applicants for places in university teacher education programs in the top performing jurisdictions range from 1 acceptance for every 10 applicants to a little more than 1 acceptance for every 4 applicants. In addition to presenting a strong academic record, top performers require that successful candidates complete demanding interview and assessment processes assessing zeal for teaching, ability to relate to children as well as collaborative and interpersonal skills.

Close to 100 percent of candidates who apply to teacher preparation programs in Maryland higher education institutions are admitted, which is to say that anyone who can get into the university can get into the teacher preparation program, unlike the law school or business~~, medical~~, engineering ~~school~~ and~~or school of~~ architecture programs.

Finally, the top performers are moving in the direction of limiting the right to offer teacher education programs to their research universities. This is not the case in Maryland or the benchmark states.

Because the average achievement of high school graduates is much higher in the top performing countries than in Maryland, *and* because they are selecting their teachers from a

higher segment of high school graduates than Maryland is, theese countries are choosing their future teachers from a far better educated pool than Maryland is.

The top performers typically provide strong incentives to attract high school graduates with strong academic records into teaching, including paying the entire cost of attending college and graduate school, and, in some cases, providing, in addition, a salary to the teachers-in-training while in university. The Maryland legislature passed, and the Governor signed into law as Chapter 542, SB 666 in 2014, which sets up an incentive fund for prospective teachers. Maryland residents who have strong academic records (a GPA of at least 3.3, combined math and reading SAT of at least 1100, composite ACT score of at least 25, or 50% on GRE) and pledge to teach in a high-poverty Maryland school for four years, are eligible to receive 100 percent of tuition, room, board and fees at a Maryland public institution of higher education, or 50 percent at a private institution. However, these incentives have not yet been funded by the Sstate.

Recommendations

1. Maryland must work on several fronts to greatly strengthen the pool from which its future teachers come. Specifically, it must:
    a. Charge universities to greatly expand their recruitment efforts, both broadly, to (include more students from diverse backgrounds,) and in shortage areas, as annually identified by MSDE.
    a.b. Mandate that universities , and improve the quality and rigor of their ir teacher preparation programs programs of teacher education at both the undergraduate and graduate levels and hold them accountable for doing so.
    b.c. Direct Maryland's teacher preparation programs to apply for grant funding currently available from multiple major foundations to help schools of education increase the size of the pool of high ability high school students interested in applying to their programs and help their teachers-in-training to succeed in the more rigorous program of teacher education the institutions will be required to offer

2. Maryland must provide strong incentives to students with strong records of academic achievement in high school to choose a career in teaching
    a. Given that Maryland's overall teacher attrition rate is 7%, which is roughly 4,200 teachers per year, tThe State should significantly expand the program established under SB 666 of 2014 and ensure it is fully funded in the budget
        i. The program should also be expanded beyond recent high school graduates who are interested in teaching to include students who change their major and graduates who seek to echange careers and become teachers.areer changers
        ii. Priority for awards should be given to those who commit to teaching at a high needs school in Maryland. If additional funds are available then the

awards can be made to those who teach at any school.~~The program should include students who teach at *any* public school in Maryland, not just a high needs school~~

~~The eligibility requirements of the program should be broad enough to not preclude talented students who have a passion and an aptitude for teaching~~

iii. The eligibility requirements of the program should be broad enough to include ~~not preclude talented~~ students who have either a high GPA or SAT score and a passion and ~~an~~ aptitude for teaching

3. Given Maryland's rapidly changing demographics, the S~~s~~tate needs to make special efforts to recruit a more d~~o~~iverse teaching workforce. Currently, only 25% of Maryland's teachers are under-represented minorities. The Commission believes that some school children respond better and are inspired by a teacher who "looks like me" and that if a diverse workforce is desired then diverse incentives must be provided.

~~3.~~ [PREVIOUS RECOMMENDATION 4 HAS BEEN ~~(~~MOVED TO BB#6]~~Maryland should identify and implement best practices to attract a diverse pool of teachers. The following could be evaluated for effectiveness:~~

~~a. Providing child care incentives to teachers, which in combination with a higher salary (BB6), could prevent teachers from stopping out of the profession when they have children of their own~~

~~b. Providing incentives such as statewide property tax abatement or home mortgage assistance~~

~~c. Expand current tuition remission or discounts available to children of higher education employees.~~

~~d. Recruiting future teachers who attended primary and secondary school in that school system should be encouraged as a way to lower teacher attrition rates~~

~~4.~~

~~5. Maryland must enhance the current alternative pathway into the teaching profession for career changers. This pathway allows a professional with demonstrated mastery of a certain subject matter and years of experience in the workforce to become school teachers by "testing out" of the subject matter requirement and taking only a masters level one-year program in the craft of teaching to get a license as a teacher. Each person entering this alternative route should be paired with a teacher in a classroom as their practical experience.~~

~~6.~~4. Maryland should ~~R~~require MHEC, MSDE, and MLDS to report periodically to the legislature on the ~~academic ability of~~ high school graduates going into teacher education in Maryland as compared to the quality of high school graduates opting for majors in other professional fields as well students entering ~~selected for~~ teacher training programs in the top performing countries

Ensure That Candidates in Preparation Programs Master the Content They Will Teach and How to Teach It

Maryland's regulations for teacher preparation largely resemble those of the benchmark states. Teacher preparation programs in Maryland offer either a bachelor's or a master's degree route into teaching. In the three programs studied – UMCP, Towson University, and Notre Dame of Maryland University – candidates take methods of teaching courses in the subjects they will teach. Prospective secondary school teachers are required to major in the subject they will teach., but candidates teaching in elementary school do not have to specialize in one or two academic disciplines as they often do in the top performing countries. ~~Prospective secondary school teachers are required to major in the subject they will teach.~~ Programs varied in the extent to which they imparted research skills to prospective teachers: no courses were offered in this arena at Towson, one course in research was required at Notre Dame of Maryland, and three courses in research were offered at UMCP, but only at the master's degree level. These courses were not required.

P~~These p~~rograms of study at these insitutions in Maryland, consistent across most of the ~~top~~ U.S. education programs, differ from the top international jurisdictions in several ways. They do not emphasize, or even address, research skills and diagnosis and prescription, which teachers in the top performing countries use to assess the quality of the research on education, formulate strategies for improving student outcomes appropriate for the students in their classes and evaluate the impact of those strategies as they implement them in their schools. They do not require elementary school teachers to specialize in either humanities or math and science, which would by itself be a powerful lever for improving mathematics and science instruction in elementary school and mastery of the STEM subjects in the upper grades. And most importantly, they do not enable teachers to develop the kind of deep conceptual understanding of the subjects they teach that will be required of all students when digital devices take over most of the routine cognitive work that many people now do in their jobs. It is this kind of conceptual understanding that makes it possible for good teachers to grasp the misunderstandings that students typically have when they cannot grasp the material being taught and correct those misunderstandings. It is also the kind of understanding that is required to prepare students for more advanced work at the upper grades.

One way in which Maryland distinguishes itself from the benchmark U.S. states, and resembles the highest-performing international jurisdictions like Finland, is in its requirement that all teacher candidates must have an internship experience in a designated Professional Development School. In these schools, candidates receive coaching and feedback from staff that have been specially selected and trained. The schools partner with local universities to stay up-to-date on what teacher candidates are learning. The Professional Development Schools also serve as sites where teachers have career-long access to ongoing professional development and training. All full-time students must have a minimum of 100 days in the Professional Development School, which is approximately the same length, or slightly longer, as the practical experiences in the top-performing international jurisdictions. In the programs we reviewed in Maryland, teachers began their practical experience in their junior year, with

observations and small group work, and progressed to full-time student teaching in the senior year.

Recommendations

~~7.~~5. Maryland must use its ~~authority to approve~~ teacher education program approval authority ~~s~~ to ensure that the content of th~~e~~ose programs meets international~~global~~ standards of subject matter as well as mastery of the craft of teaching and, further, that the approved programs are aligned with the goals and structure of the public education system in the state. The institutions should be required to offer programs that incorporate the following features of global best practice:

a. I~~Provide i~~nstruction practices designed to enable ~~their~~ graduates to teach the specific elementary and secondary school standards adopted by the State to students from ~~many~~ different racial, ethnic and economic backgrounds, in such a way as to enable all students to reach the standards established by the State with respect to College and Career Readiness

b. C~~Teacher preparation programs must include c~~ourses that that train ~~enable the~~ teachers ~~they produce~~ to quickly identify students who are beginning to fall behind and just as quickly diagnose the problem and implement solutions to assist the student to catch up (see Building Blocks 2, 3 and 4)

c. T~~eacher candidates must be t~~rain~~inged~~ on how to routinely use research methods and data analysis tools that help teachers improve student performance

d. Ample opportunities for ~~A~~ students wishing to enter a teacher preparation program ~~should have an opportunity~~ to be in ~~a~~ classrooms to confirm their interest in and aptitude for teaching early in their college careers~~. This would be helpful so that a student can make a decision early in their college career on whether to continue in the field of teaching as well provide faculty with the opportunity to counsel a student into a more suitable major~~

e. The expectation that upper level students in teacher preparation programs will ~~As the student moves through college, the student should b~~have significant experience ~~e embedded~~ in a high quality professional development school working under the tutelage of ~~. Building on the impressive work currently underway in the state's Professional Development Schools, provide to students well-developed clinical programs based in carefully selected schools, which include extended opportunities to apprentice to~~ teachers with the rank of Master Teachers in the new Career Ladder system (See Building Block #6); such ~~these~~ teachers would~~to~~ have a reduced teaching load to enable them to perform this mentoring function well and the opportunity to gain full clinical faculty rank at the sponsoring university

6. Maryland teacher preparation programs and local school systems must collaborate regularly and develop closer working relationships to strengthen both teacher preparation and ongoing teacher training/professional development programs.

MSDE should increase its capacity to provide technical assistance and support to teacher preparation programs and develop a systematic means of providing feedback to ~~e.~~ programs so as to ensure they are better informed about the content and expecations of the pre-K-12 classrooms.

~~f. The State must make a strong commitment of support to teacher preparation programs~~

~~8.~~ MSDE should use its newly granted program approval authority to more rigorously assess teacher preparation programs. Assessments should be based primarily on the success of a program's graduates in the classroom and not on input measures such as the Praxis exam. ~~strengthen programs~~ ~~Each teacher preparation program's performance should be based on assessments of their graduates and the graduates' performance in a clinical experience. There is significant room for improvement over the currently used Praxis exams. The reapproval of each teacher preparation program should be based on the success of the graduates they produce~~

7.

~~9. MSDE should use its newly garanted program approval authroirity to more rigorously have a stronger role in evaluating~~assess ~~teacher preparation programs. Assessments should be based primarily on the success of a program's graduates in the classroom and not on input measures such as the Praxis exam.~~

~~Each teacher preparation program's performance should be based on assessments of their graduates and the graduates' performance in a clinical experience. There is significant room for improvement over the currently used Praxis exams. The reapproval of each teacher preparation program should be based on the success of the graduates they produce~~

~~10.~~

Ensure That All Candidates Being Licensed and Hired Meet the Same High Standards

Policy can be used to regulate teacher quality at the point of entry into teacher education or at the point of exit, or both. As we noted above, the top performers put their emphasis on the first of these options, at the front end of the process, by restricting the right to offer teacher education programs to their best universities. Only Shanghai implements a standardized exam measuring whether teachers have mastered the content and skills they learned in teacher preparation when they exit preparation programs. Maryland, like the benchmark states, attempts to compensate for the relatively loose regulation at the front end by controlling teacher quality at the end of the process, with licensure. All states require all teachers to pass an exam of baseline knowledge of content. The exams used in Maryland for this purpose are less rigorous than those employed in Massachusetts and New Jersey. In Maryland, candidates must earn passing scores on one of several approved assessments of mastery of core academic content. The cut scores are generally set to a low college admissions standard. Candidates must also pass the relevant Praxis content area tests. In 2015, the average passing rate

statewide for all Praxis Core and Praxis content area tests for which data are available was 98.5 percent. This suggests that the licensure standard in Maryland represents a standard of expectation ~~academic excellence~~ far below that typically met by prospective teachers in the top performing countries.

Not only do the top performers set very high standards for the students going into teacher education and for the completion of a program of preparation for teaching, but they do not compromise on those standards by allowing alternative routes that bypass those standards. In contrast, like all the benchmark states, Maryland has created alternative routes that enable candidates in high-need fields to circumvent the usual statutory requirements to be a teacher. Thirteen percent of Maryland program completers came from alternative routes in 2014, higher than eight percent in both Massachusetts and New Hampshire, but lower than 38 percent in New Jersey. While Maryland compares favorably to New Jersey on this indicator of teacher quality ~~and is not far behind Massachusetts~~, it still has a long way to go t~~t~~o match the top performers.

Furthermore, Maryland, unlike the other benchmarked states, has to recruit a large number of teachers from out of state (61 percent in 2015). This pres~~e~~ents a significant challenge in~~to~~ ensur~~e~~ing the quality of these teachers. ~~61 percent of certified teachers coming from out of state (2015).~~ Teachers from out of state with a valid out-of-state teaching license and at least three years of teaching experience in good standing are eligible for immediate licensure in Maryland even though they are not familiar with the curriculum, standards and assessment policies of the S~~s~~tate. Those without three years of teaching experience can apply for reciprocity by submitting their transcript and proof of passing scores on Praxis Core and Praxis II subject test to the Maryland Department of Education, a very low standard.

Recommendations

8. Maryland must ensure that all teachers licensed to teach in Maryland, whether they have attended a teacher education program in Maryland or in another state or country, meet standards comparable to the standards met by teachers licensed to teach in the top performing countries. Specifically, Maryland must:
    a. C~~C~~onsider, through established agencies and processes for determining licensure standards, adopting for use in Maryland the teacher licensure examinations used in the state of Massachusetts, or edTPA, a performance assessment of teaching ability developed at Stanford University
    b. Phase in these requirements so that the institutions responsible for preparing teachers in Maryland have time to make sure their students can meet these standards and to make sure that the new incentives intended to attract high performing high school graduates have time to affect the career decisions of high school students

c. Require ~~T~~teachers from ~~an~~other states ~~should be required~~ to pass the same certification exam as teachers prepared in a Maryland teacher preparation program

~~11.~~9. Maryland must enhance the current alternative pathway into the teaching profession for career changers. This pathway allows a professional with demonstrated mastery of a certain subject matter and years of experience in the workforce to become school teachers by "testing out" of the subject matter requirement and taking only a masters level one-year program in the craft of teaching to get a license as a teacher. Such teachers should be assigned an experienced mentor during their first year in the classroom.

~~12.~~10. Because raising standards for licensing new teachers in Maryland might greatly reduce the number of applicants to those programs if teaching does not become a much more attractive career option for high school students with strong academic records, Maryland school districts must raise teacher compensation and improve the conditions under which teachers work (see recommendations for Building Block #6).

~~13.~~

~~The national Teach for America (TFA) program attracted a high proportion of African American teachers. The program was considered prestigious and it had an outreach and advertising campaign at Historically Black Colleges and Universities. Although teachers in the TFA program did not stay for many years, it could serve as a model for Maryland. If such a model were to be adopted, Maryland should establish incentives to reduce not only the attrition rate of TFA teachers, but the attrition rate of all teachers.~~

Seed Grants to Form Collaboratives between Teacher Preparation Programs and School Districts to Begin Implementing These Strategies

~~14.~~11. In order to accomplish the strategies and achieve results, Maryland should create a seed grant program for school districts to partner with teacher preparation programs at Maryland universities. These collaboratives will each be composed of one or more preparation programs and one or more school districts. These entities will work together to create the conditions under which the universities will raise their standards for teacher admission and reform their education and training programs at the same time that the districts are making teaching a more attractive occupation for the high school students the university is trying to attract including implementing a career ladder and improving working conditions (see Building Block 6)

~~15.~~12. The structure of the seed grants would be short term, but multiyear, grants to help the collaboratives build their programs and "show the way" to other school districts and teacher preparation programs in the State as they implement the Commission's recommendations in Building Blocks 5, 6 and 8. Technical assistance must

be provided to applicants so that each applicant has an equal chance to put their best proposal forward.

~~16.~~13. An objective awards process should be established with very specific criteria. Grant applicants would be required to present a detailed plan for addressing all of the Commission's recommendations related to teacher quality, including training all future teachers in basic research and data analysis methods; using formative evaluation, diagnostics, and prescription to identify student difficulties quickly and use appropriate research-based responses; and teaching future teachers how to teach the specific courses in the state curriculum to students from many different backgrounds. Part of the grant application should include how the applicant proposes to achieve greater diversity in workforce pool

~~17.~~14. A critical aspect of managing the seed grants is to ensure that each proposal includes a plan to monitor the success of the innovations to be implemented. If the innovation is producing the desired results, then there would be greater comfort that scaling that program up would lead to success and ensure a high return on investment of funds. It would be optimal that a few ways to implement the Commission's recommendations are explored as one size may not fit all LEAs when it comes to scaling up. This will also ensure that each LEA has control over how best to implement the recommendations for their school. One of the data points would be the impact on teacher attrition rates.

~~18.~~15. The districts in this grant program should be expected to serve as State pilots for implementing the new leadership development systems, teaching career ladder systems and advanced forms of school organization and management described in Building Blocks #6 and #8. Both the universities and the school districts would be expected to work very closely with each other to develop the clinical training schools for new teachers

~~19.~~16. The university and district partners must take joint responsibility for building on the current Professional Development Schools to create a network of high quality Professional Development Schools serving very differents kinds of students and communities in the State, schools that will implement the emerging career ladder system design and use it to manage the new forms of school organization recommended by the Commission.

Building Block #6: Redesign schools as places in which teachers will be treated as professionals, with incentives and support to continuously improve their practice and the performance of their students

~~SUMMARY OF~~ GAP ANALYSIS ~~AND RECOMMENDATIONS~~

Career Ladder Systems

The top performing jurisdictions are increasingly using highly structured career ladders, similar to those found in most high-status professions, to structure the careers of teachers. In Shanghai and Singapore, the world's leaders in this development, as teachers progress up a well-defined sequence of steps, they acquire more responsibility, authority, status and compensation, much as one would in a large law firm in the United States, progression from associate, to junior partner, to senior partner, to managing partner. Or one could compare the careers of school teachers, who typically have the same job on their last day of work as they did on their first day, to those of university faculty, who might progress from lecturer to assistant professor to associate professor to full professor to full professors who hold endowed chairs. The career ladders for teachers in the top performing countries can be visualized as a "Y" in which the teacher proceeds from novice up the ladder to an exemplar teacher and then choose either to proceed on one branch up to master teacher and up the other to principal and beyond. In these systems, master teachers typically make as much as school principals. The criteria for moving up the ladder start with a focus on excellent teaching, but then, as they move up, focus on the teachers' ability to mentor other teachers, lead other teachers in the work of teacher teams and, finally, lead other teachers in doing research leading to steady improvement in student performance in the school. In Ontario and Finland, the professional status of teachers and opportunities for differentiated roles creates comparable incentives for retention and professional development. All well-developed career ladders in the leading jurisdictions provide strong incentives to all teachers to get better and better at the work.

Like other states, Maryland has no statewide career ladder system for teachers, although, to its credit, Baltimore City's pilot system is further along than pilots in the other benchmark states that are all experimenting with career ladders. Massachusetts, the state with by far the best student performance in the United States, is the only top performing state that has a design for a state-level career ladder system, but~~and~~ that system has been implemented in only a few school districts. The National Board for Professional Teaching Standards and the National Center for Education and the Economy are exploring developing a national framework for a career ladder that would be piloted in select states.

RECOMMENDATIONS

The Commission makes a series of recommendations relating to establishing a career ladder for teachers and addressing the gap in salary between teachers and other high–status professions in Maryland. It is the intent of the Commission that these two efforts be implemented concomitantly.

1. In order to recognize effective teachers and incentivize them to stay in the classroom, Maryland must build a statewide career ladder system modeled on the most effective such systems in the US and the world.

    a. The development of a viable career ladder will require considerable effort extending over several years and involving all of the stakeholders (LEAs, MSDE, collective bargaining units, school boards, etc.).
    b. Once established, all new pK-12 teachers would be placed on the career ladder. Currently serving teachers would eventually be placed on the career ladder after a reasonable transition period.
    c. Maryland will need to convene a group of experts and stakeholders to develop a statewide framework for a career ladder, which would include the minimum number of ladder steps, the titles for these steps, and the broad criteria for placement on each of the ladder steps and for advancing between steps. In its final report, the Commission will provide additional detail on how it recommends this process should proceed.
    d. Maryland's career ladder should present two paths to school leadership for exemplar teachers and mentors: a "Master Teacher" track that allows highly effective teachers to stay in the classroom with appropriate compensation and an administrative track that gives teachers the chance to become assistant principals and principals after they have primarily worked in the classroom and have demonstrated the capacity to be successful teachers and mentors.
    e. The process for evaluation and promotion of teachers on the career ladder should include a combination of master teachers and administrators.
    f. While the career ladder will have a statewide framework as described above, the districts and local bargaining units would negotiate the compensation and specific responsibilities at each step, as well as any additional ladder steps or requirements added to the statewide framework through local negotiations.
    g. The career ladder should be designed to complement and facilitate the implementation of the high performance work organization in the schools (see #4 below).

Teacher Compensation

Because the top performing jurisdictions are trying to attract teachers from the same cohort of high school students who go into the high-status professions, their typical stated policy is to compensate them at levels comparable to compensation for the high-status professions. Starting pay for teachers in these countries is often higher than in the high-status professions. When lower, the difference is almost always less than 25 percent. Neither Maryland nor the top performing states in the United States do that. The average statewide *starting* salary for teachers in Maryland was $34,234 in 2015, which lagged behind other professions, by up to 56 percent in 2015. This compares to up to 52% in Massachusetts, 46% in New Hampshire, and 42% in New Jersey. The average of all teachers' salaries in Maryland is $66,482. This also lagged behind other professions by up to 40% in 2015. This compares to up to 16% in Massachusetts, 31% in New Hampshire, and 26% in New Jersey.

Current salary levels combined with working conditions are having a negative impact on recruitment and retention of teachers in Maryland public schools. In particular, perilously few Maryland students are opting to pursue teaching careers. Enrollment in Maryland teacher preparation programs has declined by approximately 20 percent since 2010, and the number of graduates decreased by nearly the same amount in 2014 and 2015. Of particular concern, it appears from the available data that a sizable portion of Maryland teacher graduates do not pursue a teaching career in Maryland. Roughly 60% of *all* teachers hired in Maryland are from out of state, and less than one–quarter of newly–prepared teachers hired each year are prepared at a Maryland university, a ~~(that~~ figure that has been declining in recent years~~)~~. Add MLDS data in January

RECOMMENDATIONS

2. ~~Once the Commission's recommendations are fully implemented, t~~The gap in compensation between teachers and high-status professions that require~~ing~~ comparable levels of education ~~(assuming a 10 month contract), such as nurses, certified public accountants and architects~~ should be ~~significantly reduced, if not completely~~ eliminated. A timeline for accomplishing this goal and the appropriate benchmark comparisons will be included in the Commission's final report.
    a. ~~Once a career ladder is fully developed and implemented, i~~Increases in compensation for Maryland teachers must be tied in significant measure to their position and advancement ~~-~~on the career ladder.
    b. Advancement up the ladder should be based on the acquisition of specified knowledge and skills, rigorous evidence of success as a classroom teacher and/or additional responsibilities commensurate with the additional compensation. Teachers should ~~be able to~~ demonstrate success with students from different demographic and economic backgrounds before moving to the top of the ladder.
    c. Teachers' compensation should continue to be negotiated at the local level between bargaining units and school boards, but the State should begin conducting regular periodic surveys of compensation in Maryland, both on a

county and regional basis, to determine prevailing rates of beginning and average compensation in the high status professions. This information will provide a benchmark for teachers' salaries as a proportion of high status professions' salaries and enable the State to begin planning for achieving the goal of this recommendation.

3. Closing the gap in compensation between teachers and comparable high–status professions should be phased in as part of the implementation of the Commission's recommendations, including changes in teacher preparation programs, raising the standards for teacher certification and re-certification, the development of a career ladder system, and the new approach to school organization and management

~~3.~~

4. While~~As~~ the career ladder is being developed and implemented, Maryland needs to systematically phase-in salary increases for teachers (above and beyond cost of living adjustments) over the next 4 or 5 years in order to stem the decline in teacher recruitment and retention and to begin reduc~~e~~ing the gap between compensation levels for teachers and other professions requiring comparable levls of education. Of note, ~~T~~teacher compensation in Maryland is below the average salaries in two of the three states used by the Commission in its benchmarking work.
    a. During the phase-in period for the career ladder and while Maryland is developing and implementing an increase in certification standards, average salaries of Maryland teachers should be brought to the average of the two comparison states, New Jersey and Massachusetts, whose demographics and economy most resemble Maryland.
5. Maryland should identify and implement best practices to attract a diverse pool of teachers. The following could be evaluated for effectiveness:
    a. Providing child care incentives to teachers, which in combination with a higher salary (BB6), could prevent teachers from stopping out of the profession when they have children of their own
    b. Providing incentives such as statewide property tax abatement or home mortgage assistance
    c. Expand current tuition remission or discounts available to children of higher education employees.
    d. Recruiting future teachers who attended primary and secondary school in that school system should be encouraged as a way to lower teacher attrition rates

The Organization of Teachers' Work

The career ladders in the top performing jurisdictions are organized to support a very different form of work organization in the school, much more like that found in professional service practices such as law firms, engineering firms or universities than the form of work organization typically found in the typical American school. American teachers are expected to spend more time facing students in the classroom than teachers in any other industrialized country. By

contrast, in many top performing countries, teachers are in front of a class teaching for about 40 percent of their time at work. Most of the rest of their time is spent in teams working to systematically improve their lessons and the way they do formative assessment, work together to come up with effective strategies for individual students who are falling behind, tutoring students who need intensive help, observing and critiquing new teachers, observing other teachers to improve their own practice, doing research related to solving problems in the school and writing articles based on their research. The career ladders in these countries have structured the roles available to teachers as they move up the career ladder to support the form of work organization just described. There is no state in the United States that has thus far implemented policies designed to support the form of work organization just described.

RECOMMENDATIONS

4.6. Maryland needs to change the way its schools are organized and managed to make them more effective and to create a more professional environment for teaching, which the career ladder is designed to facilitate and support

a. The state should phase–in a reduction of the maximum time, currently 70 to 80%, that teachers are expected to teach in a typical week. This would give teachers more time to work as professionals in collaboration, as is the case for teachers in countries with high performing systems, to improve the curriculum, instructional delivery, and tutor students with special needs. The magnitude of the reduction in teachers' class time and the cost of implementation requires further study by the Commission in the coming months.

b. In order to effectively use this additional collaborative time and the new organization of schools, teachers should receive training on the Commission's recommendations and the best uses of collaborative time to build professional learning communities. As these communities develop and more decision making is moved from the central administration to the schools, more school leadership roles will be created, which will provide more opportunities for greater roles and responsibilities for teachers moving up the career ladder. This training should be a high priority for implementation.

Support for New Teachers

Ontario, Shanghai and Singapore have well-developed systems to induct new teachers into the teaching profession. They are tightly structured and monitored: mentors are recruited, selected through an interview process, trained and evaluated. Maryland has an induction coordinator for each school district and the state provides orientation training for all new mentors, but, as in Massachusetts and New Jersey, mentors are self-selected and receive minimal ongoing training at the discretion of local districts. New Hampshire leaves the decision of whether to implement a program to the districts.

The 2016 Maryland Teacher Induction, Retention and Advancement Act (TIRA) established a stakeholder group to develop recommendations for strengthening teacher induction in the State. The TIRA stakeholder group built on the work of the P–20 Council's Task Force on Teacher Education, which made numerous recommendations to improve teacher preparation and induction programs in 2015. The TIRA recommendations include: integrating mentoring during the teacher training practicum with mentorship during induction and establishing formal qualifications for mentor teachers such as tenure, five years of teaching experience, and highly effective ratings on teacher evaluation and principal recommendations. These recommendations represent a good starting point for developing a high performance system for making mentoring new teachers an integral part of the new career ladder system.

Another promising model also exists in Maryland. Known as the Peer Assistance and Review Program (PAR), Montgomery County Public Schools has successfully implemented this collaborative partnership between the school system and the teachers' union for over 20 years to use successful teachers, known as consulting teachers, to mentor and develop new teachers in the profession. Under PAR, consulting teachers also observe and provide feedback to existing teachers about their performance and best practices in the field, a practice used in the top professions. Consulting teachers are given release time from their classroom duties to give their full attention to reviewing and assisting both new teachers and teachers–at–risk.

Helping Teachers to Continually Improve Their Practice

In Shanghai, teachers are required to take 120 hours of professional development during their first year and 240 hours every five years after that. Senior-level teachers are required to take 540 hours every five years. In Singapore, all teachers are required to have 100 hours of professional development each year. In Ontario, it is the equivalent of Shanghai at 6 days per year, while Finland allows local municipalities and schools flexibility to allocate time for professional development as they see fit.

Maryland sets professional development requirements for teachers who must earn an "advanced teaching credential" to continue teaching after five years of teaching by taking 36 hours of professional development, including 21 hours of graduate credit, earning a master's degree in education or earning a certification from the National Board for Professional Teaching Standards along with 12 hours of graduate work. After earning this advanced credential, Maryland teachers must be recertified every five years, which requires taking at least six credit hours. Massachusetts and New Hampshire require 100 hours and 75 hours of professional development every three years for recertification. New Jersey only requires 20 hours of professional development for a one-time recertification of a provisional license, with no additional requirements. Like the benchmark states, Maryland generally leaves provision of professional development to districts. The research shows that requirements for specified amounts of professional development of the usual sort, including requiring Masters degrees, acquiring certificates, taking courses or earning credits by taking workshops, have little or no effect on the performance of the students who are involved in this kind of professional

development. Only when these forms of professional development are used to supplement professional development that is embedded in the work that teachers do as they participate in teams that work to systematically improve student performance does professional development make a real difference in student performance.

RECOMMENDATIONS

7. Maryland must strengthen its teacher induction systems. As part of its policies establishing the career ladder system, Maryland should require that the career ladders include as part of the responsibility of senior teachers the responsibility to mentor new teachers and experienced teachers who need help; as part of the policies established to implement new forms of work organization, these mentor teachers should be given enough time with their mentees to provide the guidance and support they will need to succeed in their initial years in teaching.

~~5.~~ The IHE–LEA collaboratives recommended in BB #5 should include teacher inductions systems for new teachers integrated with their teacher preparation program. An excellent starting point for a new induction system is the Teacher Induction and Retention Program (TIRA), modeled on Peer Assistance and Review Program (PAR), which should be scaled up across the State as quickly as possible, recognizing the challenges of economies of scale in smaller school systems, evaluated on an ongoing basis, and integrated into the new career ladder system. The initial focus of enhanced induction programs should be new teachers in schools serving high concentrations of students living in poverty and expanding to all new teachers over time.

8.

~~6.~~9. Maryland also needs to strengthen substantially its professional development policies and practices. At present, professional development in Maryland places too much emphasis on general and generic topical presentations and too little emphasis on advancing teachers' content knowledge and instructional effectiveness. The ~~S~~seed funds mentioned in Building Block #5 should include ~~be committed for~~ collaborative partnerships between universities and LEAs to create rigorous professional development programs focused on teacher's pedagogical capacity and content knowledge~~-~~. Once developed these model programs should be scaled up across the State.

Building Block: #8: Create a leadership development system that enables school leaders to create and manage high performance schools effectively

GAP ANALYSIS

Attracting and grooming a high-quality pool of candidates for the principalship

Although some superintendents of schools in the United States try to identify teachers who might be good school leaders in the future and give them opportunities to develop their leadership capacity, the Commission knows of no state that does this as a matter of statewide policy. As a result, the pool from which the vast majority of future school leaders comes is typically made up of people who volunteer for the role and who then enroll in state-required postsecondary preparation programs that rarely, if ever, assess applicants' potential as good school leaders. In contrast, top performing countries have developed policies to attract teachers who have been carefully identified as people with high leadership potential. These teachers are then given a carefully chosen set of opportunities to develop those skills while still teaching, thus creating a large, very high quality pool of candidates for school leader positions. No American state has developed policy structures of this kind on the scale required to meet all their school leadership needs.

In order to become certificated as a principal, Maryland principals are required to receive a relatively high score on the School Leaders Licensure Assessment (SLLA), however this test is not performance-based like those used in many top-performing countries. A recent study by researchers at Vanderbilt University found that the SLLA is not effective in predicting principal job performance. While individual districts in Maryland may do so, the state, like other U.S. states, generally does not actively identify and groom prospective school principals. Instead, it relies on individuals to self-identify and enroll in a preparation program. However, the Promising Principals Academy, started in 2014, provides leadership development for up to 48 candidates per year (in comparison to the projected 388 principal preparation program completers for 2016-17 who self-select). In another program of note, Prince George's County partnered with the National Institute for School Leadership (NISL) to develop an aspiring principal program that has a rigorous selection process in an effort to develop a talent pipeline for that district. To date, roughly 175 aspiring principals have been trained in Prince George's County.

Tying the development of school leaders to the system's goals and strategies

The top performers provide future leaders with the modern management skills derived from the best research on leadership from the world's best business schools and military academies. That knowledge is matched with the excellent knowledge of curriculum and instruction that comes from the fact that the leaders they develop have come exclusively from the ranks of their best teachers and teacher leaders. But their systems are also designed to do something else that is very important to them. They are designed to give their future leaders the knowledge and skills they need to fully implement the specific structures, strategies, policies

and practices that underlie that country's overall design for their high performance system. They are seen as implementers of the specific kind of high performance management system their own country has developed as a matter of policy. They do not leave the curriculum for school leadership development up to the schools of education. They expect the curriculum of the schools of education to embrace these imperatives, because the education and development of their future leaders is the linchpin of their strategy for implementing the strategies they have chosen to drive their education system forward. No American state has yet developed this kind of policy framework for the development of their school leaders.

Developing leaders who have the knowledge and skills to manage modern professionals in the modern professional workplace

The work organization of the typical American school has more in common with the organization of blue collar work in early 20th century factories than with the kinds of modern work organization typically found in modern professional practices and workplaces. In industrial age workplaces, most of the skill required to make the important decisions is found in the managers, who are expected to direct the work. In the latter, most of the expertise is found in the front-line doctors and engineers and other professionals, and the leadership is expected to create and sustain organizations that enable and support those professionals as they make the important day to day decisions, usually working in groups, that need to be made. The top performers, are, as matter of *policy*, moving toward professional forms of work organization in their school. Because managing professionals is so different from managing people in industrial work organizations, the top performers put a lot of effort into giving their school leaders the skills they will need to manage and support highly skilled professionals working in modern forms of organizations explicitly designed to support professional work. In the United States, matters of school organization in this sense are not normally addressed as matters of policy if they are addressed at all.

Creating an environment in which school leaders have the incentives and support to get better and better at the work

In a growing number of top performing countries, there is a well-developed career ladder for school leaders that is an extension of the career ladder for teachers. Just as for teachers, as one ascends this career ladder, one acquires more responsibility, more authority, more status, and more compensation. As in the case for teachers, this creates an environment in which there is a never-ending incentive for school leaders to get better and better at the work. Again, as in the case with teachers, it is frequently difficult if not impossible to ascend the career ladder without taking multiple assignments to serve as a school leader in a variety of schools serving large proportions of disadvantaged students. This policy provides many schools serving large populations of disadvantaged students with exceptionally qualified leaders and, at the same time, assures the state of a large supply of school leaders at the upper levels of the system who have served in schools populated by many different kinds of students.

Maryland does not have a statewide career ladder system for principals. There is, however, a pilot principal career ladder in place in Baltimore City, upon which the state could build as it creates a world class system and Prince George's County has been developing a nationally recognized system for training school leaders.

RECOMMENDATIONS

1. Maryland should establish a set of aligned policies to bring the initial education and training of new school leaders, including principals, district administrators and other leadership roles, in the State up to global standards, and to help Maryland school leaders develop the leadership and management skills they will need to make their schools successful and, in particular, to fully implement the recommendations made in this report in every school and district in the state. These policies include:

    a. A career ladder system for school leaders should be developed in the career ladder system Maryland creates for teachers, described in Building Block #6. A series of steps for school and district leaders, which should be built as a branch of the career ladder structure after mastery of the fully–proficient step for teachers, thus assuring that potential ~~all~~ school leaders in Maryland have demonstrated the skills and knowledge needed to be highly competent instructional leaders before they are groomed and trained for school leadership positions. The State should require that individuals who wish to ascend the career ladder for school leaders have significant experience and success at schools that represent the demographic and economic diversity of the school districts in which they have worked. Ascension on the career ladder should be based on proven outcomes and potential for further leadership growth. Further, in the upper reaches of the school leadership career ladder, school leaders should be expected to serve as mentors to new leaders of schools serving large proportions of low-performing students

    b. As the success of a school leader ~~in producing strong student outcomes~~ grows, thus demonstrating the effectiveness of the leader and the leader's team, more autonomy should be provided to that school leader for making school level decisions~~.~~

~~b. Maryland should consider moving to an assessment of leaders that is aligned with outcomes and is predictive of effective leaders~~

    c. While most of the school leaders would rise through the ranks of first being an exemplary teacher, Maryland should ~~also allow~~consider allowing flexibility in how one becomes a school leader so as not to preclude ~~truly~~ uniquely talented and passionate leaders who did not start their career as a teacher and, in fact, perhaps started their career in a non-education–related field

    d. The State should use its program approval powers to require higher education institutions that offer programs leading to school leadership certifications to

carefully evaluate the potential of candidates to be effective school leaders. The evaluation should include evidence that the school district in which that individual has been working as a teacher has identified that individual as someone with a high potential for leadership and can present a record showing that the individual has been offered various teacher leadership roles and has performed well in those roles.

e. Universities wishing to offer graduate level courses in school administration for certification should present evidence that 1) their curriculum will enable the graduates of those programs to successfully organize and manage schools and school systems in a way that closely tracks the practices of the countries with the highest and most equitable student performance and equity in the world; 2) their curriculum will enable their graduates to manage highly skilled professionals working in a modern professional work environment; 3) their curriculum will give the students in these program the knowledge and skills needed to successfully implement the recommendations made in this report; and 4) their curriculum will enable school leaders to effectively conduct peer observation and evaluation of other school personnel

f. The university-school district collaboratives described in Building Block #5 should be tasked with developing a pilot leadership career ladder and demonstrating effective ways to implement the State system for creating an abundant supply of high quality school leaders for Maryland schools. The recommendations made immediately above should be phased in over time

2. Maryland should train every currently serving superintendent, senior central office official, and principal in the State to give them the vision, motivation, skills and knowledge they will need to implement the recommendations made in this report. That training should be carried out as a high priority initiative as early in the implementation of this report as possible. The training should be designed to get all of Maryland's school leaders, at every level, thoroughly conversant with the recommendations in this report and to help them develop the capacity to implement those recommendations well.

3. School leaders should reflect the diversity of the student population and through their training as both teachers and leaders provide culturally relevant instructional techniques and leadership in their schools

Building Blocks #3, #4 and #7: Building a curriculum and instructional system that will get Maryland students to world-class standards for college and career readiness.

GAP ANALYSIS

A System that Prepares Students for College and Careers

The top-performing countries typically use statewide or nation-wide tests no more than three times in a student's career in high school. These tests are given at the entrance to high school, if entrance to high school is competitive, at the end of what in the United States would be the sophomore year in high school, and at the end of high school. The reason a test is given at the end of 10th grade is that this marks the end of the common curriculum, the curriculum that all students are expected to master in order to enter rigorous pathways matched to their academic and career interests. For their final two years in high school, students go either into a program intended to prepare them for university or for a career, with work beginning right after high school or after more career and technical education at the postsecondary level. Increasingly, in many countries, students who are in a career and technical program in secondary school go on to postsecondary education after high school, and students who are in the academic stream in high school are getting vocational qualifications as well as academic credentials after high school.

More generally, average academic achievement of students in the top performing countries overall enables them to leave high school with the equivalent of two to three years more education than the typical American high school graduate. This means, for example, that what the American student is studying in the first two years of all but highly selective colleges and universities is being studied by his or her counterpart in a top performing country in high school.

High performing countries focus on "qualifications" not diplomas. Literally, a qualification is ~~a~~ a certification that says that the student has taken specific courses and has gotten specified grades in them. In these countries, it is very clear what courses a student has to take, the content of these courses and the grades he or she has to have achieved to pursue further study or begin a career.

Such a system only works because the top systems not only say what subjects a student must study, but also describe the trajectory of topics that must be studied in that subject as a student goes through school, create course syllabi set to that trajectory or framework and create and score examinations set to the course designs. Thus all employers and universities know just what it means to have gotten a particular grade in a particular course. They know the content of the course and they know that, because the exams are centrally scored by one exam authority, they can trust the grade. Ultimately, this is exactly what a high school diploma

should signal to employers and colleges and universities in Maryland and across the United States.

With such a system in place, parents can hold the schools accountable for student success on state end-of-course exams. Students work hard in school because they can easily see that doing well in school is very important to their future whether they want to fabricate the blades for high speed, high temperature turbines or argue cases in court. No state in the United States has built a real system that encompasses all of these attributes.

Career and Technical Education

Unfortunately, career and technical education in the United States is widely regarded as what a student does if he or she cannot do academics. In the top performing countries, however, a student is expected to have achieved high competence in academics whether that student is headed to university or vocational training. There are examples of high schools in the United States that follow an academically rigorous career and technical education model, including Western Tech and Sollers Point high schools in Baltimore County. But no state has, as yet, provided such opportunities on a statewide basis, although efforts are underway in California, Massachusetts, and Delaware, to do so.

Two initiatives offer opportunities for Maryland to evaluate and build on its existing CTE program. Pathways to Prosperity is an initiative by Jobs for the Future (JFF), in collaboration with the Harvard Graduate School of Education (HGSE) and state partners, to increase the number of students who complete high school and earn a postsecondary credential with labor market value. Created in 2012, states and regions in the Pathways network design academic and career pathways in grades 9-14 focused on high-growth, high-demand sectors of the economy such as information technology, health care, and advanced manufacturing. The network allows states to build their capacity to design, implement, and scale state and regional pathways. This network can provide Maryland with the tools needed to develop and deliver high-quality CTE programming. There are currently nine state members: AZ, CA, DE, GA, IL, MA, MO, NY, and TN.

ConnectEd began in 2006 in nine districts in California with high numbers of disadvantaged students and below-average student achievement. It has since expanded its services beyond California and is working with more than 30 districts in CA, IL, MI, NY, OH, TX, and WI. ConnectEd helps leaders and educators envision and chart a course of action for building a system of college and career pathways, drawing on lessons and insights from its work in creating Linked Learning. Linked Learning is a high school model that combines college-focused academics, rigorous technical education, work-based learning, and personalized student supports. ConnectEd provides assistance with capacity assessment and planning, pathway design and implementation, leadership development and coaching, pathway quality review and continuous improvement, instructional support, and work-based learning system development.

Leaving No Student Behind

While a system of this general design has proven—all over the world—to be a very powerful tool for raising student performance to the highest levels in the world at scale, it is particularly important for students from low-income and minority families. Although many Americans think the United States is nearly unique in having a lot of poor and minority students, the United States is actually about in the middle of the distribution of all the PISA countries. About 17% of the U.S. population lives below the national poverty line, which is roughly the same as Shanghai, Japan, and Germany. Hong Kong (20%) and Singapore (26%) have more poverty than the United States; all of these countries score much higher than the Unites States on PISA. In terms of the percent of students who are immigrants, the United States is roughly in the middle at 23% and Singapore is similar at 21%; Hong Kong (35%), Canada (30%), and New Zealand (27%) all have higher rates of first and second generation immigrant students, and again, score higher than the United States on PISA.

Most of these systems do not rely on multiple-choice, machine scored examinations. Most questions on their examinations are essay-based. They are therefore able to assess higher level skills and more kinds of skills than can be assessed with most of the assessments used in the United States, which gives their students a very important advantage in the global marketplace. But these top systems also publish both their exam questions and answers that earn high marks, along with an explanation, from the examiners, as to why the answer deserved high marks. In this way, the top performing countries strike a very important blow for equity, because this system has the effect of setting the same expectations for the homeless child in the center city as for the rich student in the suburbs. The standards are high and they are uniform. With examples of real student work that meets standards in front of them, students know exactly what they have to do to succeed. All of the top performing countries benchmark their academic and work ready standards to those of other top performing countries and in that way make sure that their standards are high enough to assure all students that, if they meet those standards, they will be globally competitive.

Precisely because these standards are high, the top performers pay a lot of attention to developing strategies for catching students who start to fall behind as early as possible and getting them back on track for success.

Ontario assesses school readiness at age five. Using a tool called the Early Development Instrument, they measure physical health and well-being, social competence, emotional maturity, language and cognitive development, communication skills and general knowledge. A little over 70 percent are judged ready; those that are not are given double-period math and/or literacy classes with specialized teachers through primary school. In addition, the Ontario authorities put a lot of effort into providing teachers with formative and diagnostic assessment tools that teachers can use to keep track of student progress and provide extra help when needed.

In Finland, all students get Individual Education Plans, based at the outset on the results of diagnostic tests given when students enter primary school. All Finnish school faculties include a special education teacher who is there to make sure that any student who needs special help gets it. During their careers in school, close to 70 percent of Finnish school children get special help at some time or other, which takes the sting out of being labelled a special education student. The vast majority of students are considered "special education" students in Finland at one time or another.

In Singapore, too, students are screened when they enter primary school. Children who need extra help are given a half-hour a day of extra reading time and four to eight additional periods of mathematics each week for the first year of primary school. At the end of the year, teachers make a determination as to whether to keep students in the program for a second year. This program has recently been expanded to the secondary schools as well.

In all of these systems, there is a massive effort to make sure there is a surplus of high quality teachers available for every school. In almost all of these systems, extra teachers are assigned to schools serving high proportions of disadvantaged students. In many of them, there are strong incentives for the best teachers to serve in schools serving high proportions of disadvantaged students.

But the commitment to enabling all students to get to high standards is most apparent in the way the top performers use their teachers' time. Much less time is spent in front of students teaching. Much more is spent in other ways. For example, one of those ways in Singapore and Shanghai is an hour a week spent by all the teachers in a regularly scheduled meeting. One of the topics at those meetings is students whose daily formative evaluations indicates are in danger of falling behind. All the teachers of that student will talk with one another to exchange ideas as to what the problem is and what might be done about it. The result might be a commitment from one teacher to talk with the student's parents or from another to conduct a diagnostic test or for another to make a change in teaching method. That team will keep checking on that student until he or she is back on track. Or the team might decide that the student needs regular tutoring to catch up and the teachers use some of the time they are not teaching during the regular school day to do that tutoring. Tutoring is not a special program with its own administration. It is a regular activity in the school, available to any student who needs it from the regular teachers, who are trained as, among other things, skilled tutors. In this way, all students, from the most gifted to those who need a lot of extra help to master the regular—but demanding—curriculum are able to do so with a minimum of labelling and a minimum of separation from the other students.

Building on Maryland's Assets

While Maryland, like other states, does not have a system of the kind just described, it does have assets that can be built on to create a system of the kind just described.

Maryland was among the first states to develop the Maryland College and Career Ready standards built on the Common Core State Standards and measured by the PARCC tests that are aligned with the Common Core. At present, students are expected to reach that standard by the end of their junior year. It is also the case that Maryland has a different standard that all students are required to reach, and a defined set of state courses in subjects that are required, in order to graduate from high school. These elements can be built on to create a real qualification system set to global standards. To do that, one standard must be identified that students are expected to meet, and the age at which the standard is supposed to be met would have to be moved back to the end of the 10th grade; a defined set of pathways for the junior and senior years, benchmarked to global standards, would have to be created; and the 10th grade standard would also have to be set to a global standard, as well as aligned with Maryland's actual requirements for success in the first year of community college.

Maryland was one of the first states to implement a school readiness model for entering kindergarteners in the early 2000s. Every entering kindergartener was assessed using the model. The model was recently replaced with the Kindergarten Readiness Assessment (KRA), which is aligned with Maryland's College and Career Ready standards. Presently, the KRA is given only to a sample of entering kindergarteners unless the school and teachers agree that all kindergarteners will be assessed. This will be discussed further under Building Block #1.

The existing Maryland lesson plans and lesson seeds could be a good starting point for developing the kind of K-10 curriculum with full supports that typifies the instructional systems in the top performing countries. The level of literacy expected by the end of 10th grade would have to be benchmarked to the top performers expectations for their students at that grade level. Once that is done, a full trajectory of expectations—grade by grade or grade span by grade span—would have to be set for each subject required for graduation, through the 12th grade. Then course syllabi would have to be written or, where they exist, revised and refined and high quality exams created where needed. Examples of student work that meets the standards at the 10th grade level would have to be collected and explanations of why they meet the standards written.

If Maryland chooses to emulate the emerging global best practice with its career and technical education program as well as in its academic program, it would have to focus that program on the junior and senior year of high school, set it to a high academic standard, collaborate closely with the employer community in setting the technical standards for the curriculum, closely integrate the program with the postsecondary career and technical education program at its community colleges, so that the transition is seamless, and provide instructors who are deeply conversant with the state of the art in the occupations the students are training in. Maryland would also have to create opportunities for students to acquire a wide range of technical skills at employer work sites, which may require new State regulations on apprenticeship for minors, below market wages for apprentices and other adjustments to the current environment available to high school age students for acquiring the kinds of skills they will need in an age of rapidly advancing automation, neural networks and artificial intelligence.

Perhaps the greatest challenge for Maryland and other states, if they want to have a globally competitive education system, is the steps it will have to take to bring its students up to the level of academic performance found in the top performing countries. That is true for students at all levels but it is especially true for those who are most disadvantaged.

At present, far too many Maryland students leave high school reading at the 8th grade level or below based on community college remediation rates. In 2017, 49% of Maryland students taking PARCC English 10 received a score of 750 or higher (4 or 5), which is considered on track for college and career readiness (even fewer, 36%, received a score of at least 750 on PARCC Algebra I). For students reading below the 10th grade level, the kinds of measures that the top performers use to assess where students are when they enter the first grade (kindergarten in the United States) and frequently thereafter will be essential. Those diagnostics will have to be used to develop plans for each student to address his or her challenges straight on until that student is on track. Use of these strategies will spell the difference between success and failure for a very large fraction of Maryland students.

RECOMMENDATIONS

A SYSTEM THAT PREPARES STUDENTS FOR COLLEGE AND CAREERS

1. Maryland needs to modify its current policy on College and Career Readiness to create a system that has all the advantages of globally-emerging qualifications systems. Such systems enable their students to emerge from high school two to three years ahead of where Maryland's typical student is at present and ready for both demanding college-level work and no-less-demanding technologically-demanding careers. Such a system will require:

    a. Moving the grade year by which students are expected to acquire levels of proficiency in mathematics and English literacy needed for success on adopted Maryland assessments (e.g., a score of 4 or 5 on the PARCC assessment) in the first year of community college to the end of 10th grade, on the understanding that some students may take as long as the end of their senior year to reach this standard.

    b. Conducting a study of the actual requirements in mathematics literacy for success in the first year of a typical Maryland community college program to determine the appropriate mathematics assessment for college and career readiness at the end of 10th grade (*e.g.* Algebra I, Statistics, Algebra II).

    c. Incorporating a science assessment into the requirements for college and career readiness by the end of 10th grade (science is already a high school graduation requirement) — and considering whether other subjects should be added.

    d. Using PARCC as the State's measure of the literacy and mathematics requirements to be on track for college and career readiness, and for high school graduation, but

beginning to plan for the use of high quality assessments in the event that PARCC is no longer available.

e. Regularly evaluatinge and bBenchmarkinging graduation standards for all subject requirements to their equivalents in the top performing countries and states and regularly reportinging the data, with a goal of raising graduation standards to the equivalent of top performing countries and states regularly over time.

f. Setting a goal that by a date certain students[1] will be expected to meet thise on track for college and career readiness standard and schools will be held fully accountable for their success in helping students reach this standard. The Commission will propose such aset this date in itsthe final report.

f.g. Requiring all Maryland high school students who are on track for college and career readiness by the end of 10th grade to be offered, by a certain date, rigorous pathways toward college and careers, including a high school upper division program consisting of the IB Diploma Program, the AP Diploma program, University of Cambridge Diploma Program or a program of similar academic rigor; a program consisting of all the courses required to get an Associate's Degree by the end of the senior year in high school (in collaboration with higher education institutions); and a high quality career and technical education program resulting in either an industry recognized credential or a credential entitling the holder to begin a demanding post-secondary program of technical education and training. The Commission will propose such aset this date in itsthe final report during the 2018 interim.

g.h. Creatinge an early warning system as soon as possible based on formative evaluations that enable teachers to identify students who are beginning to fall behind and have teachers work together to get the student back on track. This process should be done in all grades. (see BB # 2 and 5).

h.i. For students who are not college and career ready by the end of the 10th grade, Maryland should build on its current transition course model. Interventions should include providing an evidence–based curriculum that is designed to help students catch up and targeting more teachers and resource personnel to struggling students. Students who are close to meeting the college and career ready standard at the end of 10th grade, or who meet the standard before the end of 12th grade, should have opportunities to participate in the college and career pathways, for example, by taking a co-requisite higher education course that includes remedial and credit-bearing coursework in a subject for which they are not yet college and career ready courses.

[1] It is understood by the Comission that college and career readiness may be different for students with the most severe disabilities, but the curriculum and instructional system, including standards and expectations, needs to be world-class for all students.

j. Constructing clear curriculum frameworks in all grades K-10 for all required subjects for which a framework does not already exist, and using the curriculum frameworks to:

i. W~~-w~~rite sample course syllabi for each required subject in each required content area.

ii. Write~~ing~~ sample essay-based examinations for each grade, as appropriate, matched to each syllabus, to the extent required.

~~i.~~iii. Collect~~ing~~ examples of student work in each grade that meet the standards for each required subject and writing commentaries explaining why the work meets the standards so that teachers and students know exactly what is required to meet the standards.~~Requiring all community colleges to enroll students that achieve the 10th grade standard in credit-bearing coursework without remediation.~~

~~j.~~k. Requiring all Maryland community colleges to enroll students that achieve the 10th grade standard in initial credit-bearing coursework without remediation.~~Setting a standard that students enrolling in four-year universities must achieve in order to enroll in credit-bearing coursework without remediation, and requiring public universities to enroll students meeting the standard in such courses.~~

~~k.~~l. Setting a standard that students enrolling in Maryland four-year universities must achieve in order to enroll in credit-bearing coursework without remediation, and requiring public universities to enroll students meeting the standard in such courses.

CAREER AND TECHNICAL EDUCATION SYSTEM

2. While ~~building on the progress that~~ Maryland has made considerable progress in creating Career and Tehnical Education (CTE) programs~~in this arena~~, the s~~S~~tate must make significant changes in its approach to CTE education if it wants to provide high ~~develop the~~ quality ~~of such~~ programs like those that ~~at~~ countries lead~~n~~ing the way in this arena have established. To this end, the Commission recommends: ~~work hard to match the achievements of those countries that are in the lead in this arena by:~~

a. Creating two groups to improve the current CTE program.

i. The first group would be an ad hoc (non-permanent) group ~~-~~formed by the S~~s~~tate as soon as possible. ~~to analyze the current CTE program and make recommendations to improve the program including the interrelatedness of CTE programs with workplace apprenticeships and higher education. It~~The ~~group~~ would be composed of a select few individuals who~~that~~ have expertise in CTE programs (or related knowledge and experience) and ~~on~~ the needs of

the Maryland business community. It ~~and~~ would act independently from Maryland's education agencies. The group would (1) benchmark Maryland against the best CTE systems in the world, including Singapore and Switzerland, and, on the basis of that benchmarking~~;~~ (2) building on successful efforts in Maryland, recommend a CTE curriculum framework, which would include an assessment of the needs of Maryland's ecomomy and employers, youth apprenticeships and other offsite training opportunities;~~evaluate Maryland's existing CTE program based on what is learned from the best systems and the needs of Maryland's economy and employers; (3) incorporate youth apprenticeships and other offsite training opportunities into the CTE system;~~ (34) recommend a governance structure to implement a ~~robust~~ CTE system comparable to the best such programs in the world; and (4~~5~~4) report back to the legislature and the governor on the steps that the State needs to take to develop a fully world-class career and technical education system. ~~This group would then be dissolved.~~

ii. A~~Then a~~ second, permanent group would be formed to monitor the implementation of~~ensure~~ the recommendations ~~are implemented~~ and to ~~ensure that those CTE programs are successful~~hold school systems accountable for the success of their CTE programs. This second~~advisory~~ group would advise ~~MSDE~~ the appropriate State agencies and school districts on its career and technical education programs and would be a larger group with representatives from appropriate State agencies ~~MSDE~~, leading Maryland employers, State economic development officials, relevant experts, and Maryland educators at the elementary and secondary and higher education levels.

b. Incorporating skill standards into the CTE curriculum ~~skill standards~~—including those for 'soft' skills—students will need to meet in the future that should be driving today's career and technical education programs.

~~b.~~c. For students who are not college and career ready by the end of the 10th grade, Maryland should build on its current transition course model. Interventions should include those identified in recommendation 1i. Students should also have opportunities to participate in CTE courses concurrently with being enrolled in transition courses.

~~c.~~d. Fully engaging employers in the design and provision of the workplace-based programs needed to equip students with both the theoretical and practical skills ~~needed~~ required to pursue rewarding careers in the future.

e. Launching a statewide initiative to rebrand CTE as providing valuable and value-added skills for all students and partnering with industry to develop a media campaign

~~d.~~f. Collaborating with the State's community colleges to design a system in which ~~very~~ high quality career and technical education programs are offered to high school students with the assistance of community colleges and these high school programs are aligned with equally high quality community college technical programs, forming a continuous course sequence leading in some programs to advanced study in university.

~~e.~~g. Joining with a national network of states interested in benchmarking the best career and technical education programs in the world and in collaborating in the development of advanced systems for career and technical education, such as the Pathways to Prosperity and ConnectED.

LEAVING NO STUDENT BEHIND

3. Maryland must, like the top performers, measure the school readiness of all incoming kindergarteners and enable teachers to use the knowledge thus gained to create education plans for each child and for the school that reflect the professional judgment of the faculty of the school as to the measures that need to be taken to help each child get on track and stay on track to college and career readiness (see Building Block #1 for more details).

4. Maryland schools must, like Singapore, Finland, and Ontario, make whatever adjustments are needed in the normal program of the school to focus on the core needs of each child as revealed in the initial screening (see also Building Blocks ~~#~~ 1 and 2).

5. Maryland must provide every elementary teacher in the State and appropriate university faculty members responsible for the preparation of elementary school teachers training in tutoring techniques shown by research to be effective in teaching reading to students who enter first grade not yet ready to profit from on-grade instruction in reading and to students who remain behind in the primary grades. The ability to identify the differing needs of struggling learners and the skill to design appropriate intervention strategies should be built into the teacher preparation programs in all schools of education across the State as well as ongoing professional development for teachers (see also Building Blocks # 2, 5 and 6).

6. Until~~After~~ the policy recommendations related to teacher training in R~~r~~ecommendations #4 and #5 ~~above~~ are implemented and~~Until such time as~~ Maryland teachers routinely have the knowledge and time to do so during the regular school day, Maryland must invest in a program to train tutors for school-age students who are significantly behind in reading in the primary grades. ~~Minnesota has created such a program for reading and math tutors, and a similar program is operating on a limited basis in Maryland~~(See also Building Block # 2)

7. Maryland must make the same kind of investment in the tools needed for high quality formative evaluation of students that the top performers have been making, as also recommended in Recommendation 1h above, so that regular classroom teachers develop high levels of expertise in the techniques needed to recognize in real time, almost immediately, during a class, which students do not understand or misunderstand the material, and also, the tools and knowledge needed to accurately diagnose the problem and identify a~~nd~~ solution with a high probability of working (See also Building Blocks # 2 and 5)

8. Maryland must develop policies to give regular classroom teachers the kind of time during the day away from their teaching responsibilities to work with other teachers ~~that teachers in the top performing countries have~~ to pool their observations of students who are experiencing trouble, to come up with solutions to those problems and together monitor student progress to make sure that the solutions are working; Maryland must also develop policies to give its regular classroom teachers much more time to tutor students who need that special attention to get on track and stay on track (see also Building Blocks # 2 and 6 ~~for details~~)

CTE ON THE FRONTIER:

CATALYZING LOCAL EFFORTS TO IMPROVE PROGRAM QUALITY

Introduction

No symbol of the American public education system is more timeless than the rural single-room schoolhouse. Today, rural schools and institutions of higher education are increasingly asked to do more with less to adapt to the expectations of the 21st century economy. In particular, many state and local leaders are working to develop innovative strategies that expand options for rural learners and ensure that meaningful career pathways leading to sustainable, high-wage careers are available to all, regardless of their background or geographic location.

This series focuses specifically on access to high-quality Career Technical Education (CTE) in rural communities, identifying strategies to strengthen the rigor, breadth and quality of rural career pathways at both the K-12 and postsecondary levels. While some states have larger rural populations than others, the National Center for Education Statistics reports that every state serves learners in rural school districts and institutions, making delivering high-quality career pathways in rural communities a shared challenge nationwide.[1] CTE programs are often available in rural communities, but such programs are often limited in breadth, of questionable quality, and not aligned to employer and industry needs.

The Challenge

Expanding access to high-quality CTE in rural communities is an imperative for all states. Rural learners make up a sizable portion of the student population in the United States. More than half of the nation's school districts are in rural areas, serving approximately 9.1 million K-12 students.[2] Yet, rural communities are home to only about 16 percent of degree-granting two-year postsecondary institutions[3] — which often provide advanced education and training to prepare learners for high-skill careers — necessitating either a long commute or relocation for many learners pursuing high-quality career pathways at the postsecondary level. As a result, only 28 percent of rural adults above age 25 held at least a two-year degree in 2015, compared to 41 percent of urban adults.[4]

In this environment, it is critical that state and local policymakers ensure that all learners can access high-quality career pathways in their own communities and engage with experts in the classroom and workplace. CTE helps learners gain the real-world skills they need to be successful in their chosen careers and is a powerful strategy to boost rural economies by closing critical skills gaps that harm local employers. CTE students are more likely to graduate from high school,[5] have higher achievement in academic subjects,[6] and be prepared for credit-bearing college coursework immediately after graduating.[7] At the postsecondary level, four out of five students who earned a CTE certificate or associate degree were employed within six years of starting their degree, and more than half considered their job to be the start of a career.[8] State policymakers have a critical responsibility to

ADVANCE CTE State Leaders Connecting Learning to Work
CCSSO Council of Chief State School Officers
ESG Education Strategy Group
NEW SKILLS FOR YOUTH JPMorgan Chase & Co.

ensure that all learners — regardless of their geographic location — benefit from high-quality career pathways that prepare them for success in a career of their choice.

Yet there is no question that rural communities face unique challenges when it comes to delivering high-quality CTE programs in multiple Career Clusters®. Quite often, CTE programs have high startup costs, and rural schools have few resources to serve a sparse student population. Additionally, rural communities often have fewer employers, many of whom may run small companies in niche industries. This situation can lead to limited industry partnerships, fewer work-based learning opportunities, and incomplete information about careers in the region. And the physical distance between secondary schools and postsecondary institutions can make ensuring that CTE programs can offer smooth transitions between high schools and two- and four-year institutions challenging. In light of these challenges, rural schools must be innovative with the resources at their disposal to strengthen the quality and variety of CTE programs they provide.

CTE on the Frontier

To help states unpack the challenges and potential approaches to expanding access to quality CTE programs in rural communities, Advance CTE — in partnership with the Council of Chief State School Officers and the Education Strategy Group, through the New Skills for Youth initiative — is releasing a series of briefs titled *CTE on the Frontier*. The series will explore some of the most pressing challenges facing rural CTE, including program quality, access to the world of work, leveraging partnerships to expand program offerings, and the rural CTE teacher pipeline.

Through interviews with state CTE leaders at both the secondary and postsecondary levels, Advance CTE identified promising practices and strategies to strengthen access to and the quality of career pathways in rural communities. This brief explores how states are supporting efforts to increase the quality of career pathways at both the secondary and postsecondary levels.

The State Role in Improving Rural Career Pathways

Some of the challenges with high-quality rural CTE delivery include ensuring that all programs are responsive to employer needs and that secondary and postsecondary programs are aligned. Issues of quality are not exclusive to rural settings — ensuring that CTE programs are high quality is critical to the success of a statewide career readiness strategy — but the nature of CTE delivery is different in rural institutions, which may necessitate a more focused strategy.

For example, decentralization, lack of resources and more limited employer relationships in rural communities can result in the preservation of legacy programs over more industry-relevant career pathways. Decisions about what programs to offer can be driven by the availability of equipment or facilities, teacher supply and even tradition. Many state CTE leaders reference outdated programs that are preserved simply because they have always been offered. Without careful planning, decisions can easily be determined by the availability of resources rather than by learner or employer need, resulting in inequitable access to quality programs across the state.

Despite these limitations, leading states like Nebraska and South Dakota have launched initiatives to catalyze local strategic planning efforts and strengthen CTE program quality in all communities. Such states have taken a bottom-up approach to improving CTE quality, equipping district superintendents,

Rural CTE in Federal Policy

There are a number of explicit avenues to leverage federal policy to support rural CTE. Additionally, state leaders and policymakers often have the flexibility to leverage both federal policy and federal dollars for rural CTE. Some examples include:

Carl D. Perkins Career and Technical Education Act of 2006 (Perkins Act): State Reserve Funds

While states must distribute 85 percent of Perkins funds to local recipients, they can choose to dedicate 10 percent of those funds to a Reserve Fund, which can be used to support CTE in rural areas or areas with high percentages or high numbers of CTE students. Many states choose to focus at least some of their Reserve Funds on supporting rural areas.

Perkins Act: Forming Consortia and Pooling Funds

At the local level, Perkins grant recipients may elect to form consortia (an option for local recipients that qualify for less than $15,000 in grant funds) and apply for a Perkins grant collaboratively. Local recipients may also pool a portion of their funds with other eligible recipients for certain uses, including activities related to implementing CTE programs of study (e.g. professional development for CTE teachers, administrators and faculty). States can use Perkins state leadership funds to support these efforts through incentive grants.

Workforce Innovation and Opportunity Act (WIOA): Governor's Set-Aside

Under Title I of WIOA, governors may elect to reserve up to 15 percent of their state's allocation "for statewide workforce investment activities."[9] This funding stream is fairly flexible in terms of allowable expenses and includes career pathway development and implementation, job-driven strategies and local-sector partnerships.[10]

Every Student Succeeds Act (ESSA): Rural Education Achievement Program (REAP)

Through REAP, ESSA supplies formula funds for eligible districts in rural areas with low numbers of students. These funds can be used for a number of authorized purposes, including bolstering CTE efforts.[11] REAP also supplies additional funds that state education agencies can distribute to local education agencies via subgrants. Similarly, districts can leverage these dollars for a variety of initiatives to support rural CTE.[12]

postsecondary leaders and local administrators and educators with tools to make strategic decisions about which programs they provide. Additionally, states like Idaho and Mississippi are tackling the challenge of program alignment by adopting policies to connect CTE programs vertically, from high school to college, as well as horizontally.

How Nebraska's reVISION Initiative Fuels Local Planning Efforts

Nebraska has a significant rural population. Even though the state is more than 77,000 square miles, more than half of the student population is located in the districts surrounding Omaha and Lincoln, the only two urbanized areas in Nebraska. About 80 percent of Nebraska's 244 school districts are considered rural.[13] Yet participation in CTE is high across the state, with students taking an average of 5.5 semester-long CTE courses throughout their education careers.

To ensure that all career pathways provided across the state are high quality and responsive to regional labor market needs, state leaders in Nebraska established reVISION — a process that empowers local communities to work

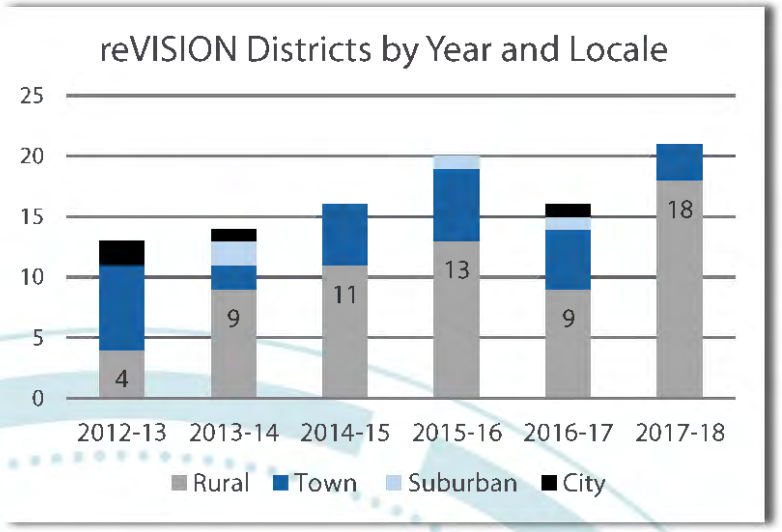
collaboratively and strategically to strengthen and improve their own career pathways. While reVISION is a statewide initiative, Nebraska has taken measures to ensure that the program targets rural schools and districts.

Nebraska launched its reVISION effort in 2012 using state Perkins Reserve Funds. Since then, the program has been scaled to serve 87 districts across the state, with an additional 21 beginning the initiative in the 2017-18 school year. The approach requires participating districts to engage regional stakeholders, evaluate the quality of their program offerings, and rethink the way CTE is delivered in their communities. While the districts applying in the initial round of the program were evenly distributed across different geographic regions, state leaders have made an intentional effort to recruit rural districts to ensure that the benefits will affect programs statewide. By the second year of the program, participation by rural districts more than doubled, and by 2017 two-thirds of the districts served through reVISION were rural.

The reVISION initiative is a year-long process that begins with a local inventory of a school's career education programs. Before meeting with the Nebraska Department of Education, participating schools are required to examine the breadth of programs of study offered in their buildings, the degree to which those programs are aligned with postsecondary entrance requirements, and any available extended learning opportunities. Once the school-based inventory has been completed, the school sets up a meeting with representatives from state agencies to unpack the data and collaborate around potential strategies to increase access and quality.

In addition to Department of Education staff, school counselors and administrators, the initial meeting is attended by representatives from the Department of Labor and the Department of Economic Development to ensure that regional and state labor market needs are a consideration from the outset. This meeting is often the most valuable part of the reVISION planning process. During the meeting, representatives from the state pull up data from Nebraska's H3 website, which provides real-time labor market and economic data and identifies what the state refers to as "H3" — or high-wage, high-demand and high-skill — jobs.[14] Structuring the planning conversation around data enables local leaders to identify growing industry sectors and prioritize their work accordingly.

Another key pillar of the reVISION process is community and industry engagement. Once school leaders have met with staff from the Nebraska Department of Education and identified areas of growth for the local school's CTE program, the next step is to reach out to regional employers and community members to gather input on how local CTE programs can better meet their needs. This process is largely driven by regional employers, who can speak to the talent gaps and relevant competencies in their respective industries.



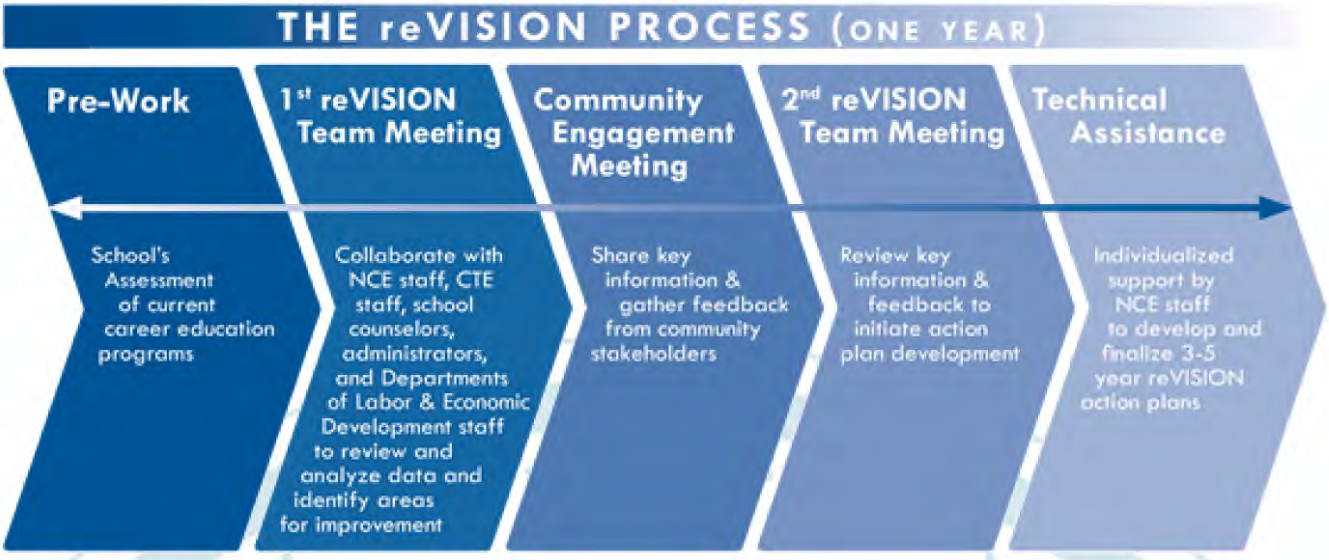
Participating schools report that these meetings have helped build relationships with local employers. One leader reflected that, despite a small business base in the community, the district was able to get great feedback from local employers through reVISION and was responding to this feedback by developing a district-level coordinator role to improve community connections. Another reported that stakeholder engagement through reVISION helped identify desirable traits for employability in high-wage, high-demand industries.

Based on input from these meetings, school staff develop a strategic action plan to address gaps in the school's CTE programs. The action plan describes the school's three- to five-year vision, outlines strategies for addressing the gaps identified in the needs assessment, and provides specific next steps and roles for executing the action plan. Once the action plan has been completed, schools submit their plans to the Nebraska Department of Education, which provides support and technical assistance to help schools and districts deliver on their plans. Additionally, schools and districts that complete the reVISION process are eligible to apply for competitive, one-year action grant funds to support their ongoing work.

Not all schools that apply for the action grant are awarded funds, but many report that the work completed in the action planning stage is enough to get the ball rolling. District leaders report that reVISION helps their schools set long-term goals, align programs with industry needs, and even identify additional private-sector funds from partnerships established through the initiative.

Nebraska's reVISION was launched with a relatively small investment from the state's Perkins Reserve Fund. As more schools and districts adopted the approach, the Nebraska Legislature diverted state funds to support reVISION expansion. Since 2013, the state has awarded nearly $3 million to more than 40 schools through both the planning and action stages of the initiative.[15]

One of the primary benefits of reVISION's regional approach to strategic planning is that it leverages a small amount of funds to enhance career preparation activities and better meet labor market and community needs. As a result, school leaders and CTE program administrators can hear directly from employers, families and other community members in their service area and use their input to identify and address gaps in quality and access.



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Additionally, reVISION puts labor market data in the front seat, empowering local leaders to make data-driven decisions about which programs should be offered. Through the reVISION process, local leaders have identified underperforming or outdated programs and redirected resources to support programs in high-demand career pathways. For example, many districts identified a growing need to strengthen career pathways in Health Science, spurring an intentional shift toward offering more related content and retraining educators in less-demanded career pathways such as Family and Consumer Sciences. In a recent survey of participating school districts, 87 percent reported at least one new CTE course or program that was adopted as a result of the reVISION initiative, and many reported adjusting or discontinuing outdated programs.

Lessons Learned in Nebraska:

- Taking the time to examine and re-evaluate CTE program offerings at the school and regional levels provides a critical check to ensure that programs are high quality and meet the needs of learners and employers.
- Labor market data, supported by meaningful employer partnerships, should be a core driver of rural program improvement activities.
- A small but strategic state investment can serve as a powerful catalyst to fuel local efforts to strengthen program quality.

The thoughtful inclusion of staff from the Department of Labor and Department of Economic Development in the early planning process, as well as the examination of labor market data, helps equip school leaders with the information they need to prioritize certain programs. This prioritization has resulted in intentionally redirecting resources away from outdated programs and toward those identified as high wage, high demand and high skill.

Catalyzing Local Innovation through South Dakota's Workforce Education Grants

Nearly half of **South Dakota's** elementary and secondary students are considered rural,[16] which is why the Rural School and Community Trust named South Dakota one of the top 10 highest priority states in rural education for 2017.[17] Like many rural states, South Dakota's biggest challenges include expanding access to CTE coursework (less than half of secondary students take CTE classes), ensuring that learners have access to a variety of options, and leveraging scarce resources to promote high-quality CTE programs and discontinue those that are outdated.

South Dakota has made progress in recent years on strengthening rural CTE through strategic investments and grants. While funding is always a critical resource, simply funneling additional dollars into local programs is not in itself an effective strategy for ensuring program quality. To be truly effective, state funds must be distributed strategically, aligned with quality outcomes and distributed with an eye for scaling impact.

In 2014, Gov. Dennis Daugaard issued more than $8.5 million of discretionary funds to 12 South Dakota school districts. These funds were designed to catalyze local partnerships and strengthen secondary CTE programs. While the program objectives were clear, districts were given the flexibility

to design solutions that would best meet their needs — as such, projects were varied, addressing issues related to transportation, resource sharing, industry engagement and more.

For example, the Todd County School District — a rural district in southwest South Dakota serving approximately 2,000 students across grades K-12 — received more than $103,500 to align CTE curriculum with local business needs. As part of this effort, the district administered a survey of local businesses, allowing program directors to identify the career pathways and competencies that would be most valuable in the local economy. As a result, the district identified a need for stronger programs in science, technology, engineering and mathematics (STEM) and has since developed a new STEM career pathway for middle school students.[18]

Around the same time, the South Dakota Legislature passed Senate Bill 235, which helped codify and sustain the governor's initiative. The bill authorized a multimillion dollar Workforce Education Fund to support secondary CTE programs and directed the State Board of Education to write criteria for administering grants.[19]

Like Nebraska's reVISION efforts, South Dakota is leveraging this Workforce Education Fund to catalyze partnerships and prompt local leaders to better align program offerings with regional labor market needs. The grant process affords applicants considerable leeway to design and execute projects to meet their own needs, but applications must be anchored in the nine priority areas identified by the State Board. These priority areas include:

- Evaluating and redesigning local CTE programs;
- Aligning programs with postsecondary and workforce needs;
- Strengthening collaboration between secondary schools;
- Forming postsecondary and industry partnerships;
- Expanding the use of industry standards, updated equipment and student certifications;
- Integrating academic content;
- Developing plans for sustainability;
- Supporting retention of educators and counselors; and
- Increasing access to rural CTE programs.

This last priority was adopted so that funds could be directed to districts most in need and to ensure that rural districts applying for grant funds would not be disadvantaged by a lack of resources, such as a professional grant writer, that are accessible in larger districts.

Under the State Board's stipulations, Workforce Education Grant recipients are required to match state funds one to one, though in-kind donations can qualify, to ensure that local grant recipients are committed to the project and approach state funds as a catalyst, rather than a primary driver, of the work. The State Department of Education also provides technical assistance and other supports in the form of webinars, coaching and sharing of best practices to help local grant recipients maximize their impact over the 18-month grant period.

When the competition opened in 2016, nine schools were awarded a total of $800,000 to support 18-month initiatives to enhance secondary CTE.[20] Projects included upgrading programs, expanding work-based learning opportunities, forming a concurrent credit partnership with a local postsecondary partner, and enhancing facilities and purchasing new equipment. After the first year of the initiative, the Legislature voted to expand the grant program with up to $2.5 million in funds and

update the eligibility criteria so that nonprofit entities offering CTE programming — not just school districts — would be eligible to apply.

In early 2017, a second round of the grant competition was opened, and an additional five recipients — including four school districts and one nonprofit — were collectively awarded more than $1 million.[21] Projects in the second cohort of grant recipients similarly focused on enhancing and updating programs. In total, six of the 12 grants awarded in the first two grant cycles went to rural districts, and only two went to areas classified as suburban or city.

Quite often, the people best positioned to lead transformative work and address the unique challenges and needs of rural CTE programs are the educators, administrators and leaders in those communities. However, state leaders can and should play a critical role in identifying local innovation and providing the technical support and funds to scale promising work. South Dakota's Workforce Education Grant program provides a framework for supporting local efforts by outlining guidelines and promoting essential priorities while preserving local flexibility to design and implement projects.

Lessons Learned in South Dakota:

- Any statewide initiative should consider limitations — such as lack of grant writing staff — that may disadvantage rural communities and adopt measures to adjust for such disparities.
- State leaders have the power to identify and prioritize certain non-negotiables of high-quality career pathways to guide local program improvement without limiting innovation.
- States can support local efforts in rural communities by providing meaningful and targeted technical assistance, sharing best practices, and convening peers to tackle problems of practice.

Connecting Rural CTE Programs to Industry Needs and Postsecondary Opportunities

To ensure that learners are prepared for success, it is critical that career pathways are designed with industry needs and postsecondary linkages in mind. Again, this challenge is not unique to rural communities. All programs must be held to high standards of rigor and quality to prepare learners for success. However, aligning learning outcomes among secondary, postsecondary and industry can be particularly difficult in areas with limited numbers of employers — or primarily small businesses — or institutions of higher education. Therefore, it is imperative that state leaders provide supports to ensure that CTE students in rural communities are not disadvantaged by their location. In such environments, states can convene relevant stakeholders, provide targeted supports and set clear policies to ensure that program quality is consistent across the state.

Idaho's Program Alignment Initiative

In many states, credit articulation agreements, which permit secondary students to apply credits earned in high school toward a postsecondary degree or certificate, are often established on a case-by-case basis between local school districts and programs at postsecondary institutions. This practice results in a myriad of bilateral agreements that may unintentionally restrict postsecondary options and lead to credit loss, particularly for rural learners with limited access to postsecondary institutions.

To combat the issue, a number of states have begun to build statewide articulation agreements that support learner transitions and strengthen CTE programs of study.

In **Idaho,** the Division of Career & Technical Education (ICTE) launched a program alignment initiative in 2013 to establish statewide articulation agreements and align secondary and postsecondary learning outcomes, thus ensuring that CTE students will be prepared to continue their education at a college of their choosing. The effort brings together secondary and postsecondary CTE instructors, along with industry partners, to align learning outcomes, create a framework for technical skills assessments, and establish statewide articulation agreements for career pathways. Educators from rural and urban communities alike are represented.

At the beginning of the program alignment process, secondary and postsecondary faculty, along with relevant industry representatives, come together to examine and rewrite secondary instructional standards. Once standards are drafted, they are shared with a wider group of industry representatives who review and rank specific standards as "Nice to Know," "Need to Know" or "Critical to Know." This review ensures that the learning outcomes most important to employers in the field are prioritized.

Once this stage of the process has been completed, the resulting learning outcomes are used to form the framework for end-of-program technical skills assessments, which are used to certify a student's mastery of the content.

Separately, postsecondary faculty from the state's six technical college regions also convene to examine first-semester learning outcomes and ensure that they are aligned among similar programs across the state. Faculty also identify opportunities to award postsecondary credits to learners who demonstrate competency at the high school level. This approach helps ensure that learners in even the most remote communities receive instruction that is aligned with postsecondary coursework, allows them to accrue postsecondary credit and is relevant to employers in their field.

In the spirit of continuous improvement, ICTE has also built in feedback loops, using student performance data on technical skills assessments to ensure that educators and program administrators get the information they need to strengthen their programs. In 2016, ICTE began using technical skills assessment data to design targeted professional development, delivered by postsecondary faculty, for the state's annual CTE Summer Conference. By drawing on student performance data, ICTE is able to identify and address specific learning competencies that students are struggling to master. Fifty-five secondary teachers attended these trainings in 2016, and ICTE expects participation to grow to more than four times that number by the 2018-19 school year.

Connecting rural career pathways with postsecondary opportunities is always a challenge. But as ICTE's program alignment initiative continues to grow, rural learners in Idaho can more easily move along their career pathway to a sustainable and meaningful career.

Mississippi's Community College Program Approval Process

Decentralized governance across different regions, particularly those in rural areas, can make consistency and quality a big challenge at the postsecondary level. In **Mississippi,** the Community College Board, which provides coordination and support to the state's 15 community and junior colleges, has put measures in place to help ensure that all postsecondary CTE programs are high quality and aligned with labor market needs.

One of these measures is requiring all community and junior colleges in Mississippi to submit a New Program Application form before launching a new program.[22] In addition to the application, they are required to submit justifications of student demand and industry need. To identify student demand, institutions must administer a local student survey and determine whether there is enough demand to start a new program. To justify labor market demand, they must examine employment projections as well as identify local employers that would be able to hire students graduating from the program. These requirements ensure that learners have a viable career pathway once they complete the program.

The New Program Application Requires Mississippi Community Colleges to Demonstrate:

- Name and site of potential employer(s) or trainees;
- Annual employment opportunities;
- Annual employment projections for the specific program;
- Local and state 10-year employment projections;
- Evidence of prospective student interest from surveys; and
- Projected enrollment and program graduates for five years.

Retrieved from http://www.mccb.edu/pdfs/ct/newprogramapplication.pdf

The Community College Board's review of the application is not a rubber stamp. The Board scrutinizes each application, corroborating submissions with regional economic and workforce data to confirm that programs are appropriate for the region. Only if the college can demonstrate that student demand is sufficient and that the program is responsive to labor market needs is the program

Jones County Junior College

Mississippi's Jones County Junior College — the recipient of Advance CTE's 2017 Excellence in Action award in the Health Science Career Cluster® — is an example of a high-quality rural postsecondary CTE program. The Emergency Medical Technology Education (EMTE) program of study was established in 1990 and, despite being located in rural Ellisville, MS, has grown to be one of the strongest programs in the state. The program benefits from strong industry partnerships, many of which enlist students to participate in high-quality clinical internships. In fact, students in the program complete more than 500 hours of work-based learning guided by professionals in their field before graduating.

Furthermore, Jones County Junior College faculty have fostered valuable relationships with nearby high schools and career technical secondary centers, serving as program advisers for health science programs. Staff also frequently partner with elementary schools to raise awareness about careers in health science.

While Mississippi's program approval process is not solely responsible for Jones County Junior College's success, there is little doubt that the state's approach helps ensure that programs are responsive to local needs and that meaningful partnerships are established. The EMTE program demonstrates how institutions of higher education can overcome rural delivery challenges, forge impactful partnerships, and provide high-quality instruction that supports learner success.

For more, see https://cte.careertech.org/sites/default/files/2017ExcellenceAction_JonesCounty_Health_FINAL.pdf.

approved for implementation. Even then, programs that are given the green light are also required to have a regional advisory committee to provide support and guidance. While other states have statewide approval processes for postsecondary programs, Mississippi's process demonstrates how states can set clear guidelines for quality and use their roles as coordinators and approvers to ensure that all programs are responsive to labor market needs and student demand.

Mississippi also employs a statewide curriculum development framework to ensure that program content is informed by business and industry needs and that content is uniform across all 15 community and junior college campuses, particularly those serving rural populations. Curriculum development is led by the Community College Board, which writes learning objectives and develops instructional content for postsecondary career pathways, using nationally recognized standards aligned to credentials of value.[23] Before curricula are deployed, business and industry leaders are invited to review the learning objectives to validate that what is taught in classrooms is what is needed in the workforce. Curricula are updated every four to five years so that course content reflects the latest industry standards.

This approach addresses two primary challenges faced by rural colleges and other institutions of higher education. First, state CTE directors voiced that rural CTE programs often struggle to build strong relationships with business and industry leaders, many of whom are centralized around urban hubs. This distance makes a homegrown curriculum development strategy challenging. Second, aligning program content horizontally across the state in such a way that learners can transfer course credits can be challenging. Using a standard and frequently updated curriculum ensures that rural learners can access quality content that is recognized statewide.

State Strategies to Support Rural CTE Program Quality

State and local policymakers are often forced to make tough decisions about how to deliver CTE programs in rural communities, pressured in part by limitations such as resource scarcity, small student populations (and therefore, demand) and limited instructional staff. However, as Nebraska's reVISION program and South Dakota's Workforce Education Grants demonstrate, a little bit of funding can go a long way if it is focused and deployed strategically. These states are successfully leveraging relatively small pools of state and federal dollars to foster meaningful local partnerships and promote the re-examination and enhancement of local programs, providing helpful supports and technical assistance along the way. Meanwhile, Idaho and Mississippi have each put meaningful policies and processes in place to ensure that programs are high quality, consistent and responsive to labor market needs.

These and other examples are instructional to help state leaders enhance program quality and maximize impact in rural communities. State leads should consider the following approaches to effectively catalyze local innovation and promote high-quality career pathways in rural communities.

- **Leverage federal and state funds to fuel local innovation, using state criteria as guidelines for quality:** The Perkins Act allows states to set aside up to 10 percent of local grants in a Reserve Fund, which can be used in part to support rural CTE programs. Likewise, other state and federal funds can be leveraged and braided to support rural education. State leaders should first map their assets and identify any funds that can be used to support rural CTE. Competitive grant programs, while exclusionary and limited in scope, can promote innovation and provide enough kindling to fuel impactful local strategies that can be replicated elsewhere. Once a proof of

concept has been demonstrated, other districts and communities can learn by example.

When designing new grant initiatives, state leaders should consider which essential program elements should serve as guidelines for local efforts and drive quality programs. Should the project prioritize partnerships among secondary, postsecondary and industry? Should labor market alignment be incentivized? Such guidelines can preserve quality without limiting local innovation.

- **Provide meaningful technical assistance and other supports to help local program administrators identify solutions:** While local program administrators are often best positioned to identify and address the needs in their own communities, state leaders have the expertise, resources and convening power to help local leaders overcome challenging barriers. To maximize impact, technical assistance should be responsive to rural needs, drawing on program performance data, labor market information and community input to ensure that supports are targeted and specific.

  An emerging strategy in **Wyoming** called WyoSIMPL allows local educators and program administrators to examine workforce data and determine their own priority focus areas. The state then provides technical assistance based on locally determined needs. Additionally, state leaders can emulate Nebraska's approach through reVISION by using their convening power to get the right people around the table. Getting the right people around the table requires bringing together CTE educators and administrators, as well as business and industry representatives, to strategize their approaches to rural CTE delivery and ensure that programs are high quality.

- **Take a regional approach to designing or upgrading programs to ensure that they are responsive to local needs:** Finally, considering regional context is paramount to ensure that programs are relevant and meet community needs. Mississippi's program approval process, for example, ensures that all new CTE programs offered through the community and junior college system are not only responsive to labor market needs but also informed by student interest. Such an approach helps ensure that programs are high quality and that, when tough decisions are required, local leaders are empowered to support CTE programs that lead to meaningful career opportunities over those that are easier or cheaper to implement.

In short, millions of students across the United States attend high schools and colleges in rural areas, and many of them have access to and are enrolled in CTE programs. Yet CTE program quality varies from state to state and region to region. To ensure that learners have access to the full promise that CTE offers, it is imperative that states use the tools available to them to catalyze local efforts and strengthen rural program quality.

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CTE ON THE FRONTIER

CONNECTING RURAL LEARNERS WITH THE WORLD OF WORK

CTE on the Frontier

To help states unpack the challenges and potential approaches to expanding access to quality Career Technical Education (CTE) programs in rural communities, Advance CTE — in partnership with the Council of Chief State School Officers and Education Strategy Group through the New Skills for Youth (NSFY) initiative — is releasing a series of briefs titled *CTE on the Frontier*. The series will explore some of the most pressing challenges facing rural CTE, including program quality,[1] access to the world of work, leveraging partnerships to expand program offerings and the rural CTE teacher pipeline.

Through interviews with state CTE leaders at both the secondary and postsecondary levels, Advance CTE identified promising practices and strategies to strengthen access to and the quality of CTE pathways in rural communities. This brief, the second in the series, explores how states can and are supporting efforts to ensure that all learners in rural communities have the opportunity to engage directly with employers and the world of work.

The State Role in Connecting Rural Learners with the World of Work

One unique and critical element of CTE pathways is that they offer learners exposure and access to authentic experiences inside and outside the classroom. CTE provides opportunities for learners to gain real-world skills and real-world experiences through their coursework and direct interactions with industry partners through work-based learning, mentorships and Career Technical Student Organizations (CTSOs). Having access to industry partners and the world of work is critical to learners' career awareness, exposure and preparation and to the overall quality of the CTE pathway.

For these opportunities to be guaranteed, industry must play a key role in the design, development and delivery of CTE pathways, including in rural communities. However, ensuring that all learners in rural communities have opportunities to engage with industry partners can be difficult — more often than not because of physical distances between employers and schools and institutions as well as limited transportation options. And many rural communities do not have a wide variety of industries represented, limiting learners' opportunities to explore a diversity of career clusters and pathways.

This challenge is by no means new, and a number of states, districts and colleges have been pioneering innovative solutions, many of which focus on bringing the world of work to learners — rather than requiring learners to leave their classrooms. Technology plays a major role in these efforts as well as targeted funding and implementation support that recognizes and accounts for the rural context.

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NEW SKILLS FOR YOUTH
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Bringing Industry Exposure and Experiential Learning Directly to Learners

A number of states and communities have realized that if they cannot bring all learners to the workplace, they can still bring the workplace to learners. This strategy addresses two major barriers: an insufficient number of workplace experience placements for learners — which is a challenge in nearly all areas, not just rural communities — and transportation barriers for learners who do not have access to public transit or a vehicle.

A number of states, such as West Virginia, Montana and South Dakota, have identified ways to bring the physical experience of work-based learning and employer engagement directly to learners through simulated workplace experiences, innovative satellite campuses and mobile labs.

West Virginia Simulated Workplace

West Virginia's Simulated Workplace program demonstrates how states, particularly those in rural geographies, can draw on industry expertise to provide authentic work-based learning to students within a classroom setting.

Simulated Workplace was launched in 2013 after industry leaders expressed a need for students to learn employability skills — such as punctuality, teamwork and safety — in addition to the technical skills typically taught in CTE classrooms. Part of the project's initial success was due to a joint commitment from the state's workforce development board, Workforce West Virginia, which committed $224,000 in funding and helped promote and evaluate the program, and the West Virginia Chamber of Commerce, which agreed to help get the program off the ground and recruit industry partners. As a rural state, West Virginia wanted to create a program that opened up access to all communities, including those with limited economic development and activity.

Through Simulated Workplace, high school students transform their classrooms into businesses to create an authentic workplace environment. Participants in the program are treated like employees: They are required to pass an interview for entry into the course, fill assigned roles within the company, participate in random drug tests, write a company handbook and pass a safety training. Many of the programs operate as school-based enterprises, entrepreneurial operations in a school setting. For example, Tolsia High School in Wayne County, WV, has Simulated Workplace for each of its seven programs of study. Rebel Construction is the Simulated Workplace for the carpentry program

School-Based Enterprises

More than simple school stores, well-designed school-based enterprises (SBEs) can serve as learning laboratories and provide students opportunities to apply their entrepreneurial, business and marketing skills in addition to other skills related to their career pathways. From catering companies and salons to credit unions and auto shops, SBEs can take on many forms across the Career Clusters. SBEs are a core component of DECA, a Career Technical Student Organization (CTSO) that provides standards to support SBE design and implementation and certifications at the program and student levels.

The Connecticut Technical High School System coordinates a system-wide Student Workforce program, which connects the various SBEs. Through the system's website, individuals and companies can find out which schools offer direct services, ranging from automotive collision repair and carpentry to graphic design and sound production. For more, see https://www.cttech.org/about/student-workforce.

of study, which takes on construction and renovation projects in the community, earning a profit that is reinvested into the program. [6]

One of the more innovative components of the program is the onsite business review, which brings "inspectors" from the business and industry community into the classroom to observe and rate programs based on their adherence to industry standards. The evaluation is coordinated by the West Virginia Department of Education (WVDOE), which recruits employers to visit the classroom as inspectors, schedules site visits, and even provides an Industry Evaluation rubric[7] that inspectors can use to assess Simulated Workplace programs.

For rural school districts without a local industry presence, the WVDOE will occasionally bring in business leaders from across the state or, more often, connect them to the classroom through web-based video conferencing software. The business review focuses on the authenticity of the program and is being used by the WVDOE to identify programs in need of improvement. Programs that pass the assessment are deemed "Industry Endorsed Programs." Those scoring below the threshold are eligible to receive technical support and must develop a program improvement plan.[8]

After a four-year pilot and rollout at an increasing number of high schools throughout the state, the Simulated Workplace program was scaled statewide in 2015 to all high schools in every community. At the same time, the West Virginia Board of Education voted to adopt 12 Simulated Workplace protocols that govern the design of the programs and ensure consistency and quality.[9]

Rural CTE in Federal Policy

There are a number of explicit avenues to leverage federal policy to support rural CTE. Additionally, state leaders and policymakers often have the flexibility to leverage both federal policy and federal dollars for rural CTE. Some examples include:

Carl D. Perkins Career and Technical Education Act of 2006 (Perkins Act): State Reserve Funds

While states must distribute 85 percent of Perkins funds to local recipients, they can choose to dedicate 10 percent to a Reserve Fund, which can be used to support CTE in rural areas or areas with high percentages or high numbers of CTE students. Many states choose to focus at least some of their Reserve Funds on supporting rural areas.

Perkins Act: Forming Consortia and Pooling Funds

At the local level, Perkins grant recipients may elect to form consortia (an option for local recipients that qualify for less than $15,000 in grant funds) and apply for a Perkins grant collaboratively. Local recipients may also pool a portion of their funds with other eligible recipients for certain uses, including activities related to implementing CTE programs of study (e.g., professional development for CTE teachers, administrators and faculty). States can use Perkins state leadership funds to support these efforts through incentive grants.

Workforce Innovation and Opportunity Act (WIOA): Governor's Set-Aside

Under Title I of WIOA, governors may elect to reserve up to 15 percent of their state's allocation "for statewide workforce investment activities."[2] This funding stream is fairly flexible in terms of allowable expenses and includes career pathway development and implementation, job-driven strategies and local-sector partnerships.[3]

Every Student Succeeds Act (ESSA): Rural Education Achievement Program (REAP)

Through REAP, ESSA supplies formula funds for eligible districts in rural areas with low numbers of students. These funds can be used for a number of authorized purposes, including bolstering CTE efforts.[4] REAP also supplies additional funds that state education agencies can distribute to local education agencies via subgrants. Similarly, districts can leverage these dollars for a variety of initiatives to support rural CTE.[5]

During the 2015 school year, more than 13,000 students participated in more than 500 Simulated Workplace classrooms across West Virginia. Notably, the program also has a 97 percent student satisfaction rating, indicating the extent to which student ownership in the program has contributed to a positive learning environment.

Lessons Learned in West Virginia

- States should plan for scale at the outset. West Virginia always had statewide implementation in mind and developed aligned policies and supports, such as the 12 protocols and rubrics, to ensure consistency and quality as the program was scaled across the state.
- By scaffolding industry engagement — and offering an opportunity for employers to volunteer just two days a year to conduct site visits and evaluations — West Virginia is able to reach a wide array of partners and encourage existing industry partners to help with recruitment efforts.
- School-based enterprises can replicate authentic work-based learning experiences, if they are taught by a qualified instructor and evaluated and supported by industry partners.

Door-to-Door Exposure through Mobile Labs

A number of states and communities are using mobile labs and classrooms — outfitted with the latest equipment and facilitated by travelling instructors — to reach a wider audience and physically bring career and industry exposure to learners who face geography and transportation barriers.

Montana has leveraged a number of federal programs — including a Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant — and private foundation funding to purchase trucks for mobile simulation and training. With 44 of its 56 counties categorized as "frontier" (based on a population density of fewer than six people per square mile), physical distance between schools, colleges and industry is a very real and significant challenge. By purchasing various mobile labs, Montana helps bring industry-standard equipment and professionals into local communities. While many of the simulation and training trucks aim to simply expose learners to possible career paths and introductory lessons, one of the welding labs is equipped to allow learners to earn industry-recognized credentials. Of note is that while three of Montana's simulation trucks — managed by MobileSim Montana — were initially funded to provide emergency medical services and training to rural hospitals, they are now aiming to provide direct supports and training to schools and colleges.

In addition to Montana, other states are leveraging mobile labs to either expose students to career opportunities or backfill specific skills and competencies. For example, a consortium of colleges in western **Nebraska** has invested in mobile labs, which are led and staffed by postsecondary instructors, many of whom have industry expertise. These labs travel the region continuously, reaching participating schools every two to three weeks. They focus primarily on exposing students to various industries, such as health science, manufacturing and welding, and the career opportunities available within each of those industries.

Similarly, in **South Dakota,** a number of consortia throughout the state have pooled resources to share mobile classrooms and labs. In the northwest region, for example, nine schools have been part of such a consortium for almost 30 years. A recent state investment through the Workforce Education Grant fund has allowed the consortium to upgrade its program and sparked new consortia.[10] In the central region of the state, with support from state funds, four schools are now leveraging a mobile

classroom to share a full-time medical lab technician from a local hospital to teach a Project Lead the Way biomedical course. While the efforts began with some of the larger districts, with the financial support from the state and outreach from participating schools, South Dakota expects to see more of the smaller districts join existing or form new consortia in the coming years.

There is no question that mobile labs can be incredibly expensive — using a grant from the Leona M. and Harry B. Helmsley Charitable Trust, MobileSim Montana spent about $1.5 million for its three mobile simulation training trucks. However, these mobile labs can be leveraged in meaningful ways to fill gaps in career and industry exposure and instruction, in particular for those learners who are most disconnected, by distance and experience, from career opportunities. Mobile labs also can help ensure that equipment and instructors reach a wider audience of learners by physically transporting the equipment from school to school. What is most important is that states determine the purpose mobile labs should serve, be it exposure or full preparation, and design the program and funding appropriately. A mobile lab may not be able to serve every need, but it can serve specific needs very effectively.

Connecting the Classroom to Careers

In 2016, Advance CTE released, in partnership with the Council of Chief State School Officers and Education Strategy Group through the New Skills for Youth initiative, a series of briefs and a culminating guide to help states develop and implement a statewide vision for work-based learning.

This series focused on expanding access to meaningful work-based learning for all learners in high school and the key policies and practices state leaders could take to build work-based learning systems. Many relevant examples and lessons from the series apply within the rural context, including:

Set a Vision

To ensure that all learners — including those in rural settings — have opportunities to engage directly with industry, states must set a clear and ambitious statewide vision for the work and use that vision to drive and coordinate efforts throughout the process. Part of this vision is defining what high-quality, career pathway-aligned work-based learning truly means and having a shared understanding of that definition, and how it is implemented, among educators, work-based learning coordinators, learners and industry partners.

Engage and Support Intermediaries

A common element of any successful work-based learning program is that someone is committed to coordinating that program and, in particular, managing the relationship between educators and industry. As such, the state has a clear role in supporting the existence of work-based learning coordinators and/or intermediary organizations through funding, building formal partnerships, or even tasking state-level organizations to play the role. This element is critical in all communities but particularly in rural areas with less capacity and fewer resources.

Focus on Scale

While serving all communities and learners will require a diversity of programs and approaches, any efforts should align with and work toward the statewide vision and be part of an intentional strategy to reach scale. Only by starting with a goal of ensuring that all learners will have opportunities to be connected to the world of work — and using data and feedback loops to identify gaps along the way — will state leaders be able to target resources and technical assistance effectively and efficiently.

For more, see https://careertech.org/resource/work-based-learning-comprehensive-guide.

Scaling Employer Interactions through Technology

Some states, like **Louisiana,** are focusing on expanding access to industry experts through various technology-based solutions. Technology can help bridge the physical gap between learners and industry partners, which is why many rural communities have invested, often with support from state and federal funding, in technology including broadband, devices and live-streaming equipment.

Louisiana — as part of its Jump Start CTE initiative — has launched a multifaceted effort combining technology and hands-on teacher supports to provide rural students with employer engagement, a process the state calls micro-industry engagement. Micro-industry engagement enables all students to engage with workplace experts in every industry sector they want to explore, working toward the goal that a student's future not be limited by his or her parish boundary or personal circumstances.

In Louisiana, micro-industry engagement is more than just virtual speaker presentations. Rather, it is intended to be a series of cumulatively structured engagements and is designed around four key tenets:

- All students have virtual access to workplace experts in every industry sector they are interested in exploring;
- Teachers are empowered with the technologies and curated instructional resources to find virtual workplace experts relevant to every student's individual interests;
- Schools and teachers offer students a menu of virtual and in-school exercises that provide the best possible analog to onsite workplace-based learning; and
- Students must prepare for productive sessions with workplace experts, mastering increasingly sophisticated communication skills with unfamiliar workplace adults.

A major component of Louisiana's micro-industry engagement is a strategic partnership with Nepris, a company that provides students with virtual engagement technology. Nepris uses the Zoom technology for schools, teachers and students to virtually interact with workplace experts.

Nepris leverages this web-based platform to connect students with a network of more than 18,000 professional mentors from 5,000-plus companies located across the entire state. Teachers make requests for a range of employer engagement activities — such as conducting a one-on-one interview with a student, providing virtual feedback on a capstone or other project or judging a CTSO competition — and Nepris makes a connection with an eligible and appropriate industry partner. To build a more strategic pool of industry partners in high-demand fields, the state has engaged the Louisiana Council for Economic Education to create and manage networks of employers based on specific needs, such as supporting students with disabilities or women in STEM (science, technology, engineering and mathematics).

As an example, at Haynesville Junior/Senior High School, students engage in these micro-industry engagement sessions on a biweekly basis and have been exposed to a range of professionals, such as physical therapists, diesel mechanics, and a marriage and family counselor. The school, which primarily serves low-income students in a very rural community, has re-engaged a number of the mentors based on student demand.

At the heart of this program is not the technology but rather the mix of supports and resources that focus on quality, access and implementation. When Louisiana launched the program in 2015, educators were slow to take full advantage of the new technology, requiring the state to make rapid adjustments to its strategy. To start, Louisiana (using NSFY funds) partnered with Nepris to retain a full-time independent consultant to train teachers in person on how, when and why to use Nepris. This individual provides "concierge" services to local schools and communities, including direct training in 30 parishes in 2016. The state hopes that having an intermediary like this will provide on-the-ground support and enable local usage by connecting the opportunities of Nepris to the needs of a local community.

The state also has worked to streamline and simplify the process of making and fulfilling requests through Nepris to remove another possible barrier to participation. The state has created common templates that educators can use to make specific requests of industry experts. All industry mentors give feedback to students and teachers in a standardized way.

Louisiana's Jump Start Micro-Enterprise Credentials

Nepris is also a critical element of the Micro-Enterprise Credentials. Created by the Louisiana Department of Education and the Baton Rouge Chamber of Commerce, the Micro-Enterprise Credentials require students to engage with "unfamiliar workplace adults" (i.e., those not in the school building) and master increasingly sophisticated communication skills.

The entry-level Micro-Enterprise Credential is designed to help all students master critical workplace behaviors and communication skills. The more advanced Micro-Enterprise Credential serves as a bridge to college-level accounting, entrepreneurship and business management courses.

Importantly, the state found that simply offering free licenses to Nepris failed to incentivize schools to use the system. To increase usage, the Louisiana State Department of Education, again using NSFY funds, now offers earned rebates for schools that reach a targeted number of Nepris sessions. The state is also working to ensure that schools leverage Career Development Funds, a permanent Jump Start funding mechanism that provides districts and charter schools with $238 for each high school credit students earn in high-demand fields. These funds can be used for a range of expenditures, such as teacher training, new equipment and facilities, Nepris licenses, and college and career planning activities.

Finally, Louisiana is further strengthening the opportunities provided through Nepris by partnering with Career Compass, another third-party intermediary, to create curricular materials for the Virtual Workplace Experiences (VWE) courses. VWE are credit-bearing courses that require virtual mentor interactions, career development activities and workplace simulations, which can fit into any Louisiana Jump Start graduation pathway.[11]

While initially created for rural and alternative schools as a means of expanding their access to industry engagement and Jump Start pathways, the initial rollout did not lead to any schools adopting a VWE course. In response, the Louisiana Department of Education and Career Compass have recruited early adopter schools, providing financial backing, Nepris licenses and teacher support, so they can serve as models for and provide support to other schools.

Despite a slow start in 2015, Nepris completed more than 380 micro-industry engagement sessions in the 2016 school year, a number projected to increase significantly in the 2017-18 school year.

Lessons Learned in Louisiana

- On-the-ground implementation support is critical to helping rural communities understand the value of and adopt statewide platforms and programs.
- Teachers need extensive support to get them to use new technologies. The promise of new technologies is not enough to put them into practice. At the same time, school administrators need to be advised and engaged to ensure that all key leaders are on board and support implementation.
- The more curated instructional resources the better — teachers like options.
- Grants given to schools and teachers based on the use of new technologies ("earned incentives") were more successful than simple direct grants to incentivize new usage.
- Intermediaries — at both the individual and organization levels — have an important role in the implementation and sustainability of any program. In addition, having local champions at the school level who can serve as "early adopters" and share lessons with their colleagues is a critical strategy for scaling such an effort.
- Industry engagement can take on many forms, and the state has a key role to play in defining what forms it may take and to ensure quality and consistency.

Leveraging Existing Infrastructure to Support Industry-Led Career Pathways

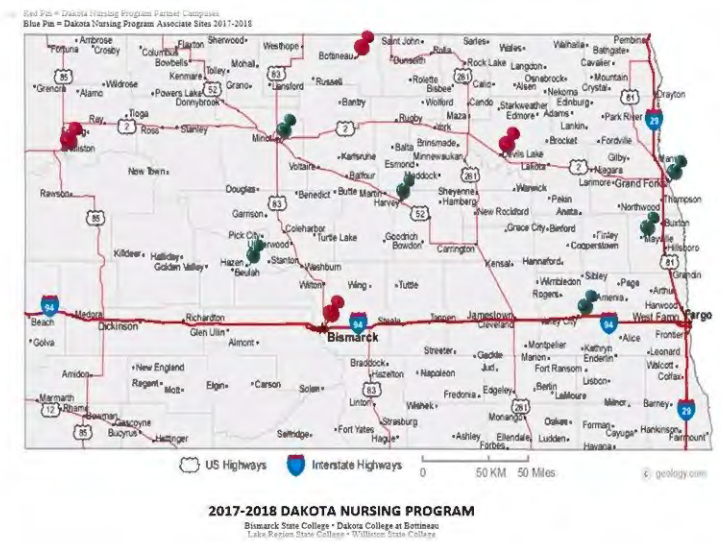
Every state leader interviewed identified health care as a critical industry, which is not surprising given that seven of the 10 fastest growing industries are related to that sector.[12] Many states also shared strategies related to expanding access to and providing opportunities for learners to be successful in health care career pathways and programs, which usually require extensive work-based learning.

Demand for health care professionals and providers knows no geographic barriers, and in some rural communities, a hospital or health care facility may be one of the only employers. A number of states, such as North Dakota and Montana, are focusing on leveraging existing networks of and partnerships with health care facilities to provide industry-led career pathways.

The Dakota Nursing Program

The Dakota Nursing Program (DNP) is a unique example of how career pathways with extensive work-based learning components can be offered in a variety of communities by leveraging partnerships, technology and direct industry engagement. Launched in 2004, the DNP is a collaboration among four community colleges (Bismarck State College, Dakota College at Bottineau, Lake Region State College and Williston State College) in **North Dakota** to strengthen the pipeline of health care professionals.

While there is a shortage of nurses statewide, the need is particularly acute in the state's many rural communities. To help those rural communities train and retain their talent, DNP partners directly with local hospitals and health care providers to enable them to serve as nontraditional satellite campuses



for their licensed practical nurse (LPN) and registered nurse (RN) programs. Over the past 12 years, the program has provided nursing education to 13 additional satellite sites in rural communities.

Participants attend classes, either in person at the home college campus or remotely in their own communities through the statewide Interactive Video Network (IVN), which connects students in real time to in-person classrooms in other parts of the state. DNP has a team of faculty to teach across the entire consortium through the IVN, which enables all learners to have access to a fairly limited pool of industry experts with specializations like pediatrics or obstetrics.

The DNP is able to serve rural communities through local partnerships with hospitals and health care facilities, which not only serve as the remote classrooms but also provide the required clinical rotations and lab experiences. For example, for students to earn their RN associate degree, they must complete a certain number of hours of lab each semester, as well as clinical hours in a hospital, long-term care facility or other clinical facility.

Now that DNP is well known throughout the state, local hospitals or communities usually approach DNP to set up a local program. As part of the agreement between DNP and the local hospital or facility — formalized through a memorandum of understanding — the hospital commits to hiring a clinical faculty member, usually from its own staff, to oversee the learners' labs and clinical work. This faculty member is then hired by DNP, with the local health care provider and the associated DNP college assuming the cost of their salary and benefits. The local site also agrees to dedicate the space and equipment for the lab experience as well as any equipment needed to establish the IVN component of the program. Finally, while the local site is usually responsible for any clinical rotations, DNP and the participating colleges assist with placements in specialized fields that are not possible in a certain facility or hospital.

DNP graduates are incredibly well positioned for success. Among DNP graduates in 2016-17, the first-time passing rate for the National Council Licensure Examination (NCLEX-RN) — the standardized exam that each state board of nursing uses to license nurses — was 92.7 percent. That percentage is higher than the statewide average of 90.4 percent and more than five percentage points higher than the national first-time passing rate of 86.2 percent.[13] The licensure exam for practical nurses (NCLEX-PN) had a first-time pass rate of 100 percent for DNP students, compared to the national rate of 83.2 percent.[14] Starting in the fall 2017 semester, the program has 167 LPN students and 121 RN students on campuses and satellite locations around the state. In the past 12 years, DNP has graduated a total of 1,195 LPNs and 915 RNs.

DNP also has articulation agreements with three universities, allowing students to earn their bachelor's in nursing within four semesters if they decide to continue their education. The program is funded through Perkins and state funds, just like any other postsecondary career pathway.

Lessons Learned in North Dakota

- Build solutions *with* local industry rather than *for* local industry.
- Set high standards for program quality, but then be flexible in supporting implementation at the local level.

Cross-System and Cross-Sector Alignment in Montana

Health care is also a top priority in **Montana,** which has an aging population and a critical shortage of health care professionals. Montana benefits from having a strong statewide network of critical access hospitals that have partnered with state agencies to create more opportunities for learners to be exposed to and prepared for careers in the health care sector.

HealthCARE Montana, a partnership linking the Montana Department of Labor & Industry, 15 of Montana's two-year colleges, and hundreds of health care employers, plays a critical role in coordinating and convening the key players. Specifically, HealthCARE Montana helps train, recruit and retain health care professionals in rural and frontier communities across the state by:

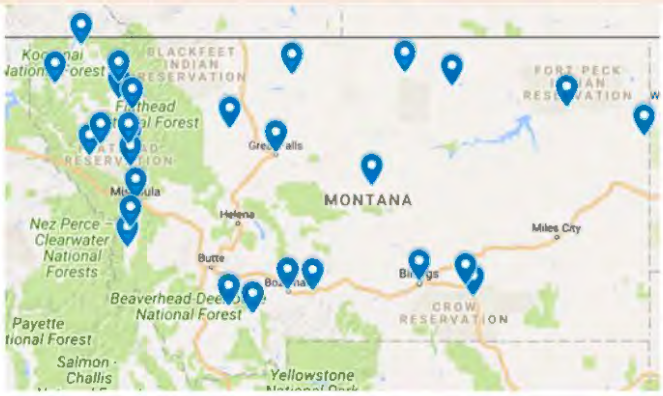
- Helping prospective students identify and access health care career pathways;
- Developing an accelerated nursing curriculum;
- Increasing opportunities for on-the-job training by developing health care apprenticeships; and
- Building and sustaining a rural, "home-grown" health care workforce that serves the smallest communities in the farthest regions of Montana.[15]

One of HealthCARE Montana's main strategies is to provide support and technical assistance to the local hospitals to help register, launch and administer registered apprenticeships in health care fields. This direct support remains a barrier to participation for the hospitals and is key to ensuring more opportunities for learners, particularly in smaller, rural communities. In just a few short years, the state now has more than 100 health care-related registered apprenticeship programs in place, including a number on American Indian reservations.[16] Since 2016, 28 apprentices have completed health care-related programs.[17] Looking ahead, Montana plans to develop pre-apprenticeships in health care targeted at high school students to build the pipeline earlier.

With initial support from a TAACCCT grant, HealthCARE Montana has a strategy for sustainability, relying on a mix of federal, state and private funding sources. Central to Montana's strategy to support its statewide vision is successfully leveraging federal funds

Registered Apprenticeship Programs

Total Apprentices	CNA BASIC	CNA ADVANCED	CNA DEMENTIA	CNA RESTORATIVE	CT TECH	SURG TECH	MEDICAL SCRIBE	MEDICATION AIDE II	ADMINISTRATOR (ASSISTED LIVING)	ADMINISTRATOR (LONG TERM CARE)	PHARMACY TECH	PRE-CODER	MEDICAL CLAIMS	PRACTICAL NURSE	PARAMEDIC
107	40	1	8	28	1	1	5	11	3	1	2	1	2	1	2



HealthCARE Montana Website, September 2017

— including one-time grants, like TAACCCT and the U.S. Department of Labor's State Apprenticeship Expansion Grant, and the strategic use of Perkins funds. For example, the TAACCCT and expansion grants could not be used for high school-age students, so Montana leveraged Perkins funds to backmap the new statewide health care career pathway — which ensures dual credit at the state's public colleges — into high school to expand access and engage more youth in quality career pathways.

The state is able to strategically leverage federal funds because of strong cross-system alignment and collaboration, particularly among the Department of Health & Human Services, Department of Labor & Industry, Montana University System and Office of Public Instruction. For example, the Department of Labor & Industry and Montana University System now share a full-time director of industry-driven workforce partnerships to bridge the two agencies. This collaboration is the result of intentional partnerships, ongoing engagement, and support and engagement from industry partners.

Warren County Area Technology Center

Students enrolled in Warren County Area Technology Center's (WCATC) automotive program of study, located in Bowling Green, **KY,** have the opportunity to engage in a unique, employer-led competition — OnTrack — during which they build racecars. This competition helps anchor the program of study in industry expectations and provide learners access to a wide array of industry partners.

OnTrack was the result of industry partnering with Southcentral Kentucky Community and Technical College, the Bowling Green Area Chamber of Commerce and WCATC to develop a competition that would encompass multiple disciplines and ground a more engaging course of study that would benefit many students across the region. From the perspective of the business community, it is an exciting way to get students interested in their companies and the work they do. From an educational perspective, the initiative is an innovative way to get students invested in a course of study and directly engaged with employers.

Since the program's launch, more than 50 corporate sponsors from a wide geographical area have stepped up to make the project a reality — providing financial support and working closely with students and faculty to aid in the development of the cars as well as the curriculum. For example, in the first year, the Chamber of Commerce purchased two cars and donated them to the school. From there, businesses contributed funds, products and time to help the students revamp the cars. In exchange, the companies received opportunities to directly engage with students who are now uniquely qualified to work in their industry.

While OnTrack is just a single competition, it has become a platform for more employer engagement. All 70-plus students participate in "Mentor Mondays," during which they learn from industry experts who share real-world examples and help them develop the employability skills they will use in the workplace. Learners not only gain these critical insights, but they also build their professional network, giving them a leg up on their career. In the 2016 school year, 100 percent of students in this program of study graduated high school, 100 percent participated in work-based learning, and 91 percent earned an industry-recognized credential.[18]

While not specific to health care, **Oklahoma** leverages its career technology centers, which are shared-time centers located throughout the state, as hubs for education, training and employer engagement. Critically, the technology centers not only serve high school students but also provide training for adults and customized training ("business development") for local industries and companies. In fact, the centers stay open after school hours, allowing other training programs to use the facilities and equipment. By positioning themselves as a source of training, incubation and entrepreneurship, the technology centers have built strong relationships with employers, which often lead to further partnerships with secondary CTE programs of study.

State Strategies to Connect Rural Learners with the World of Work

As states work to improve their CTE programs and ensure that all learners have access to authentic, industry-driven experiences, there is no question that rural communities require customized supports and strategies. Providing technology-based solutions and offering funding for efforts like mobile labs that bring the world of work to learners will not work on their own; they must be paired with technical assistance and leverage existing infrastructure to have a true impact on learner access and be sustainable.

State leaders should consider the following approaches to help ensure that all rural learners are connected to industry and the world of work:

- **Be creative when defining a "classroom" and a "workplace":** As demonstrated by West Virginia, work-based learning can happen in classrooms, and as shown by DNP, classes can be taught in workplaces. Whether in a mobile lab or computer lab, learners have more ways to engage in career exploration, exposure and training than ever before; it just requires some creativity. Regardless of the approach, state leaders should take measures to ensure that such programs are held to standards of quality. West Virginia's Simulated Workplace protocol is one example of how a state can begin to set guidelines without sacrificing flexibility.

- **Take a regional view:** Whenever possible, use funding to support and encourage consortia and partnerships to share resources, human capital and industry partners. South Dakota recently reorganized its state CTE staff based on the state's regions, rather than Career Cluster areas, to change their approach to supporting their schools, rather than programs, and be more intentional about their own work of recruiting employers. South Dakota also provides competitive funding that supports efforts like consortia and mobile labs. Oklahoma's technology center superintendents sit on their region's economic development boards to facilitate industry partnerships.

- **Invest in intermediaries to build capacity and provide technical assistance:** Intermediaries are a critical ingredient in ensuring that learners have access to industry partners and vice versa.[19] Whether they are the staff at DNP or HealthCare Montana, the full-time consultant working to provide on-the-ground support for Nepris implementation in Louisiana, or work-based learning coordinators embedded at the district or institution level, having individuals who are focused on making connections between the classroom and the workplace is necessary to ensure that all learners have access to industry and can engage in meaningful work-based learning.

- **Focus programs and funding on specific employer engagement activities rather than trying to do everything with one program:** No solution or strategy will likely be sufficient to address the entire challenge of ensuring that rural learners have opportunities to engage with industry. For example, the success of mobile labs depends on what they are trying to achieve. Different states and communities are leveraging them successfully to expose more students to the world of work and career pathways, fill instructional gaps that can be addressed only by industry experts and conduct certifications. States must be intentional — and realistic — about what any specific program can and should achieve and work to connect individual programs to a larger, cohesive rural strategy.

In short, millions of students across the United States attend high schools and colleges in rural areas, and all of them deserve to be exposed to a variety of industries and career opportunities rather than be limited by their geography. While there is no simple solution or silver bullet, states are making important progress and leveraging innovative ways to bring the world of work to learners and provide the necessary resources, technical assistance and supports to ensure that local communities can support and sustain those efforts.

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Building Block #2: Provide more resources for at-risk students so that Maryland students can achieve the world-class college and career readiness standards

Gap Analysis.

Spending

The following table compares the cost of educating the average elementary and secondary school student in the top performing nine countries, the United States as a whole and the states of Maryland and Massachusetts. Massachusetts is shown because it is the only state in the United States that would rank, if it ~~was~~were a country, among the top performers.

Top performing countries	$9,623
United States	12,152
Massachusetts	15,544
Maryland	14,291

While the cost to Maryland of educating the average student is 50 percent more than it is in the top performing countries, this does not take into consideration numerous important differences. One is that national and state accounts are not kept in the same way in the United States as they are in most other countries. For example, in most OECD countries, the competitive sports program is paid for by the municipality, not the schools, whereas that is not the case in the United States. In many highly-urbanized countries, most students take public transportation to school that is not paid for by the school district. It is also the case that benefits for school staff are accounted for differently in some countries than in others. And many of the top performing countries spend much more on general support and social, medical, dental, and other services for families with young children than the United States does, none of which is accounted for in their school budgets. In the United States, the schools bear the burden of trying to address the problems that the lack of such support in the United States causes for the schools as they try to educate students who are increasingly entering school far less ready for school than their counterparts in the countries with more generous provisions for families with young children (discussed further in Building Block #1). It is entirely possible that, once these differences in the provision of non-educational services are taken into account, the difference in expenditure could disappear. That conjecture is made more plausible by comparing per pupil expenditures in Massachusetts and Maryland, which are very similar. In this case, the accounting conventions are similar, as are ~~and~~ the provision of services to families with young children, ~~are similar,~~ so one can assume that these are apples-to-apples comparisons.

Maryland ~~is~~ ranks~~the~~ 11th in per pupil spending ~~biggest spender~~ in the United States~~.~~, but drops to 19th when adjusted for regional cost differences, even though Maryland's median income is the highest in the nation. The average of spending in the benchmark states of Massachusetts, New Jersey and New Hampshire is $2,200 ~~all spend~~ per student more than Maryland, which includes state, local and federal funds. Maryland does not do well on measures of funding

equity. Although Maryland has the highest weight in the country for low-income students in its funding formula, the State spends 4.9 percent *less* money (state and local) on poor school districts than on wealthy ones, making it the state with the 15th most regressive funding system in the nation. By contrast, Massachusetts spends 7.3 percent *more* money on students in low–income districts.

Student Performance

In summary, Maryland is spending roughly the same as top performing systems, somewhat less than the benchmark US states, and more on wealthy schools than poor schools. How does that translate to student academic performance?

T~~When looking at student performance, t~~he performance of Massachusetts' school children is comparable to the performance of students in the top performing countries, which is far superior to the performance of Maryland's students. In the latest Programme of International Student Assessment (PISA) results, if Massachusetts were a country it would have ranked among the very top performing systems in the world in science (6th highest) and in reading (2nd only to Singapore) and 18th in math. This compares to the U.S. rankings of 23rd in reading, 39th in math, and 25th in science. Maryland does not participate in PISA as a country, so there are no comparable data. However, the most recent results from the National Assessment of Educational Progress (NAEP) show that in 2015, Massachusetts led the nation on NAEP in 4th grade reading and math and 8th grade math; on 8th grade reading, it tied for 2nd place with Vermont (both a single point below New Hampshire). Maryland ranked roughly in the middle of states on NAEP (29th in 4th grade math, 26th in 4th grade reading, 25th in 8th grade math) with the exception of 8th grade reading, where Maryland ranked 18th.

While Massachusetts' performance on NAEP is among the best in the country, still only about 50% of Massachusetts' students are performing at or above proficiency. Looking at overall performance is important, but the gaps in performance between different subgroups of students -are what ~~to~~ truly measure the equity of a school system. Here Maryland and Massachusetts' performance is similar, though not positive. To compare one state to another NAEP provides an apples to apples comparison. The 2015 NAEP 8th grade mathematics assessment shows a gap of 32 points between Maryland -students who are eligible for the national school lunch program (a measure of poverty) compared to those who aren't. When looking at the race of students there is a gap of 34 points between white and African–American ~~black~~ students and 23 points for Hispanic students in Maryland. For all of these subgroups, the gap in Massachusetts is equal to or larger than in Maryland. In all cases- Maryland's gap is larger than the national gap. The gaps in 8th grade reading and 4th grade reading and math are slightly less, but still significant.

Taking a deeper dive into Maryland student performance,

Maryland participates in the Partnership for Assessment of Readiness for College and Careers (PARCC) assessments for federally mandated testing in most grade levels and subjects. The goal

is that all, or nearly all, students are proficient. The most recent data from 2017 shows that just under~~almost~~ half (49.3%) of students taking the English 10 exam received a proficient score (4 or 5) indicating college and career readiness. Further, there are racial and socioeconomic gaps in student performance. For example, while 67.5% of white students and 77.5% of Asian students were proficient, only ~~The results broken down by race are:~~ 29.0% of ~~for~~ African American students and ~~,~~ 34.3% ~~for~~of Hispanic students were proficient.~~, 45.8% for American Indian and Alaskan native, 51.5% for Hawaii native and Pacific Islander, 60.3% for two or more races, 67.5% for white, and 77.3% for Asian.~~ And only about one–quarter of low–income students, ~~When broken down by the three categories of at–risk students, the PARCC English 10 proficiency rates in 2017 were 27.6% for free and reduced price meals, 25.2% for~~ English language learners, and ~~25.1% for~~special education students were proficient.~~with disabilities.~~ (It should be noted that when further breaking down the English language learners and students with disabilities to just those students who did *not exit* these at–risk categories, the performance dropped to 2.7% for ELL and 9.7% for students with disabilities.) These ~~The~~ negative performance gaps have widened since the 2016 administration of PARCC. ~~for African American, Hispanic, American Indian and Alaskan native as well as all three at–risk categories.~~

Similar results are seen in the Algebra I PARCC assessment, with~~although~~ only ~~. Of total test takers in 2017,~~ 36.5% of total test takers scor~~ed~~ing proficient. ~~The results broken down by race are: 15.9% for African American, 18.5% for Hispanic, 26.3% for American Indian and Alaskan native, 37.3% for Hawaii native and Pacific Islander, 46.3% for two or more races, 56.4% for white, and 68.0% for Asian. When broken down by the three categories of at–risk students, the PARCC Algebra I proficiency rates in 2017 were 16.6% for free and reduced price meals, 33.5% for English language learners, and 27.9% for students with disabilities. When further breaking down the English language learners and students with disabilities to just those student who did not exit these at–risk categories, the performance dropped to 5.6% for ELL and 8.2% for students with disabilities. The negative gaps in Algebra I have also generally widened for all groups except for students with disabilities. This group narrowed the gap by 1.7 percentage points for all disabled students and 0.2 points for non–exiters.~~

Data from the OECD shows that, in the industrialized countries, there is little correlation between how much is spent on schooling and student achievement. Further, OECD has found that once total spending on a child's education (first through tenth grade) reaches $50,000, how any additional funding is spent is more important than how much more is spent.

Support for High Need Students

Among the eight states using a single weight in their formula for special education students, as Maryland does, five apply a higher weight than Maryland ~~does~~. At about 12% of students statewide, Maryland's special education enrollment is about average for the United States but more than double the special needs identification rates of the top performers in the world. ~~This~~ This issue also relates to Building Blocks 3 and 4 and to the imperative for building an instructional system with an early warning system that identifies students as soon as they begin to fall behind and provides the necessary supports to get them back on track *before* they fall

too far behind grade level. This is what the top performers do. Investing in this strategy should reduce the number of students who are identified as in need of special education services in the future.

All of the international top performers assign extra teachers to work with high need students. Finland and Singapore assign all schools learning-support teachers who work with small groups of students in classrooms to provide them with extra help to stay on-track in class. Ontario assigns literacy and numeracy support teachers to all schools, and additional teachers to secondary schools where there are high numbers of students at-risk of not graduating. These extra teachers work with students under the direction of the classroom teacher, with the aim of helping these students succeed in the specific work for that class. This is different than what is typically done in the United States where students are ~~often~~ rarely pulled out of class to work with specialists ~~once or twice a week~~, and even when they are the schools most often us~~e~~ing an "intervention" program that is not necessarily aligned with the classroom curriculum. After school support is most often provided by paraprofessionals, again with little coordination with classroom work.

In addition to assigning more teachers to at-risk students, many of the top performers have explicit policies to ensure that these students are taught by the most qualified and/or highest quality teachers. For example, both Singapore and Shanghai assign well regarded teachers and school leaders to help low performing schools and teachers. It is an expectation that many educators on higher levels of Shanghai's career ladder will teach for a time in lower performing or rural schools, either as part of the Empowered Management Schools process that shares school staff collaboratively across high and low performing schools, or as part of a temporary rotation into a low performing school full time. It is very hard, if not impossible, for teachers to move up the career ladder in Singapore and Shanghai unless they have taught disadvantaged students. While Finland does not have a specific policy to assign high-quality teachers to high-need schools, there are financial incentives for teachers to work in rural and high-need schools. In addition, many teachers teach in rural areas initially, as jobs in the cities are more competitive. In effect, this helps to distribute high-quality teachers throughout the country. In addition to these specific policies, all of the top-performing jurisdictions have much higher entry standards for the profession, which ensures a higher quality bar for teachers across the system.

Recommendations

The Commission will cost out the policy recommendations made in this preliminary report over the first few months of 2018. Until that work is completed, the Commission cannot make recommendations on the amount of the base funding in the formula, or the weights to be applied to that base for at risk students. Thus, the Commission is not yet able to recommend the amount of funding needed to provide funding that would be "adequate" for the purpose of

getting Maryland students to the College and Career Ready standards. These recommendations will be made in the Commission's final report.

Additional aspects of the funding formulas for Maryland schools will be addressed in spring/summer 2018 after the costing out of the preliminary policy recommendations is completed. These include determining (1) the base per pupil amount and weights for at-risk student populations; (2) the method for calculating local wealth; (3) the equitable distribution of funds; (4) whether to include a geographic cost adjustment factor; (5) the proxy for estimating the number of low-income students; (6) the funding for prekindergarten; (7) whether to require local school systems to fund their share of the at-risk funding formula; and (8) the impact on the local maintenance of effort requirement.

The Commission is prepared now to make the following recommendations, which will guide the Commission as it develops its final report:

1. The basic structure of the State's funding formulas as created by the Thornton legislation — uniform base funding with additional weights for specified categories of disadvantaged students based on a calculation of adequate funding — should be preserved and updated.
2. Funding must be distributed according to the needs of students ~~equitably (i.e., according to the needs of the students)~~ both among school districts – and within school districts – so that students who need additional services and supports are receiving them.
~~2.~~3. Funding must also be distributed equitably, with greater resources going to the less wealthy jurisdictions that cannot afford to provide their full share of the funding needed to fully fund the base formula and additional weights for at–risk students.
~~3.~~4. For the purpose of costing out the preliminary recommendations, t~~T~~he weight for special education students should be increased. ~~and should be differentiated based on the severity of a student's disability to recog~~nize that certain disabilities ~~require more intensive services than others.~~ The results from the costing out should be implemented as a place holder until an in–depth study by experts can be conducted and provided to the Governor and legislature, which ~~s~~should include differentiated weights based on the severity of a student's disability.
~~4.~~5. A new weight for schools with high concentrations of students living in poverty should be added. An analysis of what this additional weight should be and whether the weight should be differentiated among levels of high poverty will be conducted and included in the Commission's final report.
~~5.~~6. The necessary wraparound social services for at–risk students and their families must be significantly expanded so that all students have the opportunity for academic success. These services should include: ~~through, for example,~~ extending the school day and/or school year, providing summer school, incorporating a service coordinator at each school above a certain poverty level, and expanding ~~use of Judy Center, or~~ community schools. The physical and mental health needs of students and their families must also be addressed. ~~community schools.~~ The concentration of

poverty factor in Recommendation 4. should provide the funding to support these services.

6.

7. Maryland must ensure that high quality teachers are teaching in high needs schools and provide additional learning opportunities for struggling students

7.

8. Maryland must implement strategies to identify any special needs a student may have as early as possible and address those needs as quickly as possible. As has been demonstrated in high performing systems, this will eventually allow result in Maryland to greatly reduce the number of students who are identified as needing assigned to special education and enable the State to target special education resources other than to on those with severe cognitive disabilities. By doing what is necessary to improve both the readiness for school of children coming into kindergarten and through targeted support students receive once in school, the scale of the services reserved for special education students in upper grades can be reduced.
9. For students who continue to struggle and are not on track for college and career readiness despite early intervention, more intensive support must be provided, including one-on-one tutoring and additional instructional supports.
10. Currently Because the funding that *school systems* receive for at–risk students is based on their need for additional resources to be successful and necessary resources so that all students have an opportunity to meet State standards. and because the basic structure of the per pupil funding system incorporates additional weights to provide more resources to the three categories of at-risk students, tTThe Commission strongly endorses the concept that these targeted funds should be allocated follow at–risk students to their each *schools* based on the number of at-risk students enrolled at the school. This will allow for the allocation of additional teachers and other resources to schools and students using the results from an early warning system (BB3 and 4) that identifies students who are not on track. The Commission recognizes that schools systems need some Fflexibility in allocating funds to schools should be considered to ensure that funds, while targeted to the school, are used efficiently and effectively to reflect local strategies, initiatives, and school system student needs. Required school–level expenditure reporting by federal law beginning in 2019 will at a minimum provide more transparency in how school systems are allocating funds to schools within their system. This data will allow for analysis of school–level spending patterns between and among school systems. The Commission will continue to explore this issue and make specific recommendations in its final report.
11. The State must ensure that students have access to other professionals in the school building that provide assistance with a student's social and emotional well–being (e.g., school counselors, school psychologists) and that these professionals receive professional development in order to stay abreast of current behavioral and other intervention strategies. This staffing should be phased–in throughout the

implementation period with higher poverty schools receiving these additional resources first.

~~10.~~12. The State should study the possibility of adopting social and emotional learning standards and cultural competency standards to give student the non–academic skills needed to be college and career ready. (See also BB #3)

NOTE TO COMMISSIONERS: It is proposed that the remaining content of this document would be moved to the introduction sections of the preliminary report.

What does it take to provide an "adequate education" to Maryland students?

Maryland's constitution requires the State to provide a "thorough and efficient system of free public schools" to the State's students. In 1999, the Thornton Commission was created to recommend changes to the State's school finance system that would enable the schools to provide an "adequate" education. "Adequate" was defined as an education that would enable students to achieve the new state standards. A consulting firm, Augenblick and Myers (a precursor to Augenblick, Palaich and Associates (APA)), was engaged to advise the Thornton Commission. APA recommended that the State create a formula for funding Maryland schools with a standard (or base) amount for each student in the State, plus additional weights in the formula for students at risk of failing to meet the State's standards, including, low-income students, English language learners, and special education students. These formulas would be used to calculate the State contribution to the school systems, which would then be free to use the money as they saw fit, with the State holding the school systems accountable for the use of additional funds to improve student performance. The amount of the base and the percentages of that base amount used to calculate the additional amounts for each category of at risk student were calculated using a combination of standard "adequacy" methods, involving expert opinion (the "professional judgment" method was used, "evidence-based" is another method that has since been developed) and calculations of the actual spending by schools that were getting students to standards similar to the ones to be implemented by the state (the "successful schools" method).

The legislation implementing the Thornton recommendations required the State to conduct a follow–up adequacy study using methodologies similar to those used for the Thornton Commission report 10 years later to review the formulas and recommend changes as needed. The required study, which was delayed several years due to the State adopting new standards and assessments and the Great Recession, was begun in 2014 and completed in 2016, once again by APA, in association with Picus, Odden and Associates and the Maryland Equity Project. The Commission on Innovation and Excellence in Education was created in 2016 to review the study's findings, which included numerous other reports, and also to investigate the strategies used by the countries with the most effective education systems in the world. The Commission was charged with, among other things, making recommendations to the State on what policies the State should implement to make Maryland a world class education system and commensurate funding and changes to the funding formulas. The Commission has engaged

APA to advise it on the school finance issues and the National Center on Education and the Economy (NCEE) to advise it on the issues related to the strategies used by the top performing countries.

There are different methods of calculating adequacy. APA's approach, widely used in the United States, essentially asks the question, "How much will it cost to add the staff to the existing system and build the special programs needed to improve student performance to the target level?" The assumption is that the current system stays in place and new resources are added to provide extra services that will be needed. But data from the OECD shows that, in the industrialized countries, there is little correlation between how much is spent on schooling and student achievement. Further, OECD -has found that once total spending on a child's education (first through tenth grade) reaches $50,000, how any additional funding is spent is more important than how much more is spent. *Money matters, but how it is spent also matters.* More money is needed to get better results but the system must also be changed drawing upon the design of the systems used by the top performers to produce much higher performance with higher equity.

A growing number of State leaders are looking for new ways to structure school funding formulas, not just to distribute funds equitably, but also to make sure that those funds are used productively, efficiently and with accountability for performance. Movement in this direction by the Commission will make it a school finance pioneer in the nation. To this end, the Commission has asked APA and NCEE to work with the Commission staff to help the Commission develop estimates of what it might cost Maryland to implement an education system similar in design to the systems being used by the top performers. The overall design of those systems is captured in an NCEE document titled "The 9 Building Blocks of High Performance Education Systems." These are the 9 Building Blocks that the Commission has been using to structure its overall preliminary policy recommendations. Once the cost estimates for implementing the preliminary policy recommendations are developed, the Commission will be able to take these costs into consideration when the Commission makes its funding and formula-related recommendations in summer 2018.

Substantially more money must be provided to Maryland schools to enable the transition to this~~e~~ new system, based on what it will cost to implement the policy recommendations that the Commission makes, such as to strengthen the early childhood education system, extend wrap-around services to the schools and students that need them, construct a world-class instructional system, attract high-quality high school graduates to a career in teaching, give the current teaching force the skills they need to get their students truly college and career ready, reorganize schools to give teachers much more time to work together to improve instruction and tutor the students who need extra help, build a world class career and technical education system and put the other elements of the 9 Building Blocks in place.

~~1.~~

~~2.~~ But Maryland must also be prepared to make significant reallocation of existing funds in areas where current costs far exceed those in countries with high-performing systems to practices that have proven to have a high success rate in improving the academic capabilities of students that are used in those systems.

Building Block #1: Provide Strong Supports for Children and Their Families Before Students Arrive at School

GAP ANALYSIS

Support for families with young children in the top-performing countries

Most of the top-performing countries provide government support for families with young children that, in breadth and depth, far exceeds the support provided by any state in the United States. This often includes a family allowance, paid family leave for the mother or father—often for a year of more— free medical care, health screening services, home visits by nurses, prenatal services, maternal care services, wellness care, and parent education.

Singapore, for example, provides a one-time "baby bonus" of US $5,737 for each of the first two children and US $7,172 for each additional child. They also open a Child Development Account that can be used to fund child care and many other educational services and put US $2,141 in the account at birth and up to US $2,141 in the account in matching contributions each year thereafter. Finland provides a monthly allowance of US $103 for each child through the age of 17, with monthly supplements for single parents of an additional US $53 per child. These subsidies are in addition to all the other services just described.

These service packages are typically designed to enable one or both parents to stay at home and bond with their newborns for their first few months to two years or more, with no sacrifice in income. After that, these countries provide highly subsidized, high-quality child care on a schedule that enables the parents to work a full day without worrying about the welfare of their children. Increasingly, the responsibility for the availability and quality of child care services is lodged in the Ministries of Education, so that the provision of these services can be coordinated with the early childhood education system and the system for formal schooling, and so that there is a smooth progression in the design and operation of these services as the child develops.

All of the countries benchmarked as top performers offer free or very low cost, high quality early childhood education for all 3 to 5 year olds (compulsory schooling typically begins at age 6). In some of these countries the universal programs serving pre–compulsory school age children are called prekindergarten and in others preschool. In many of these countries, early childhood education is provided by both government and private providers, and the private providers are generally held accountable for their use of public funds. These countries are raising their standards for the quality of preschool faculty. Finland, for example, makes sure that at least one-third of the child care workers as well as the lead teacher in every preschool program have a bachelor's degree. All of the teachers in their pre-primary school are required to have master's degrees and a teacher certification if they are based in a school setting.

In Ontario, all teachers of 4 and 5–year–olds must have full certification as regular teachers. Full-day kindergarten is free for all 4 and 5-year-olds in Ontario. Almost all 5-year-olds are enrolled. Fifty percent of the 4-year-olds are enrolled and that proportion is growing quickly.

The gap between Maryland and the top performers

No American state provides the quality or range of services just described. None offers family allowances or the kind of paid family leave just described or free medical care or the range of services to new mothers that characterize the standard offering in many of the top performing countries. That includes Maryland.

In the United States, Maryland is one of only a few states that has begun to offer a full suite of wrap-around social services to families with young children before they enter school, although it is inadequate to meet the actual demand for such services. One important source of such services is Maryland's Family Support Centers. They are open to all families with children under 4 years old, regardless of income level. They offer parenting education, workforce programs, home visitation programs, infant and toddler education programs, and connect families with other services like Head Start. There are, however, only 25 such centers around the State, serving less than 3 percent of the cohort.

Maryland is also home to the Judith P. Hoyer Early Childhood Care and Family Education Centers, known as "Judy Centers," which coordinate services for children from the time they are born until they enter kindergarten. Located at a limited number of Title I schools, they pull together from community resources a combination of early childhood education, family activities, health care, adult education, identification of special needs and early intervention, child care, parenting classes and family literacy. These centers in Maryland have been admired and copied in a growing number of other states.

The average salary for child care workers in Maryland is half of the average statewide wage for all workers, whereas, in the benchmark countries, it is typically 60 to 70 percent of the average jurisdiction wage. The minimum qualifications for serving in the child care industry are higher in the benchmark countries than in Maryland and they are rising rapidly.

Maryland's child care subsidies for low-income families are notably lower than those provided in the comparison states and the benchmark countries and, in fact, among the very lowest in the country. Maryland's income eligibility to receive a subsidy for child care is $31,000 or less—an eligibility level that is among the country's very lowest--while it is about $60,000 in the benchmark states (New Jersey, New Hampshire, and Massachusetts). Although Ontario's subsidy is comparable to Maryland, Singapore has universal subsidies for all families with additional supplements for families with incomes under US $64,000 and Finland subsidizes at income under US $71,000.

Maryland is widely regarded as a leader in early childhood education in the United States. . It is one of only 8 states plus D.C. with compulsory kindergarten starting at the age of 5 (only 15

states require kindergarten attendance at all) and one of only 13 states (plus D.C.) that require districts to offer full-day kindergarten The State also requires districts to offer half-day pre-K for 4- year olds from low–income families. This is more extensive than any of the benchmarked states except New Jersey. Nonetheless, Maryland does not measure up to the 10 or more states that have universal pre-K for 4–year–olds available to families. Maryland and Massachusetts have aggressively leveraged their early childhood quality rating and improvement system (known as EXCELS in Maryland) to drive improvement in early education in the State. Providers receiving pre–kindergarten expansion grants for 4–year–olds must limit class size to 20 students and achieve EXCELS Level 5, which requires a certified early education teacher and an aide in every classroom. Maryland has adopted a number of important policies and programs designed to improve the quality of its early childhood education program, including tuition reimbursement for pre-K teachers, salaries for those teachers comparable to those in the benchmark states and a fully implemented kindergarten readiness assessment system.

Despite these achievements, however, the benchmark countries provide greater subsidies in their early childhood education programs, set higher standards for early childhood faculty and pay them better, and offer a wider segment of the population access to the system.

Putting support for families with young children into perspective

In other OECD nations the poverty level is similar to the U.S. average. Maryland's poverty level is below the national average, although there are pockets of deep, intergenerational poverty, particularly in Baltimore City but also in other areas of the State. Yet both Maryland and the United States provide far less general support to families with young children than the countries whose students greatly outperform students in this country. That means that the children of low-income parents in the United States, even though their parents' incomes might be comparable to those of their peers in the top-performing countries, are much more likely to be hungry, homeless, subject to frequent eviction from their homes, sick, in need of dental care, traumatized, limited by a very small vocabulary. Never having had a quality early learning experience – and more likely to have been cared for at home or in the home of an untrained relative or friend—they arrive at the school house door behind their peers in numerous ways.

Thus, American schools, kindergartens and preschool institutions carry a much heavier burden than their counterparts in the top-performing countries. This means it is all the more important for Maryland to significantly increase its investment in early childhood education and address educational deficiencies as early as possible in a child's life rather than let these deficiencies fester and grow worse over time.

RECOMMENDATIONS

This Commission was charged primarily with addressing issues of pre–kindergarten, elementary, and secondary education. Yet, support for families before their 3– and 4–year old

children enter pre–K is critical, because the condition of the students coming into the public schools has such an important bearing on the capacity of the schools to get all students to high standards of academic accomplishment and because the cost of doing so in the schools is, to a very significant degree, a function of the condition of the young people coming into the schools. The Commission, therefore, has debated at some length the question of how much earlier than pre–K its recommendations should reach.

The Commission has concluded that it has an inescapable obligation to make recommendations designed to strengthen not only the early childhood education system but also the systems that provide other vital services in communities, especially those that serve mainly low-income residents, because, in the Commission's view, the health, education, and social service systems, at the least, are inextricably and directly related to the function of the schools and to their capacity to do their job.

The Commission wishes to call to the attention of the people of Maryland the very large gap between what our State does for families with young children more generally and what the top performers do for those families. It is impossible not to conclude that this fundamental difference in social policy not only creates a burden on our schools that schools in other leading countries do not have to bear, but it also makes it less likely than it is in these countries that our public schools can function as our national counterweight to poverty and serve as the route to the American dream for every child.

And so, though social policy on matters such as family leave, child and dependent care allowances, and maternal support and nutrition are beyond the purview of this Commission, we respectfully urge the people of Maryland to consider that it is in the interest of every Marylander to adopt policies in these arenas of public policy more like those of the benchmark nations. In particular, though strictly speaking outside the Commission's charge, we strongly urge that the State significantly expand its network of Judy Centers (this is not outside the Commission's scope) and Family Support Centers to reach all the low-income families and their children who need them.

1. Maryland must expand its current prekindergarten program so that all 4-year-olds, regardless of income, have an opportunity to enroll in a full–day program. This can be accomplished with a "diverse delivery" system composed of both public and private providers. The State should provide more funding for 4-year-olds from low-income families, including no charge for students from families at or below 300% of the federal poverty level, while higher-income families would be expected to pay a portion of the cost. Three-year-olds from low-income families should also have access to a full-day early childhood education program. Policies designed to support these changes would need to be phased in, with priority going to provision of a full–day program for special education children regardless of family income. Maryland should set a goal of having 80 percent of all four-year-olds in high quality early childhood education programs, with a higher proportion of 3-year-old children from low-income (families enrolled in high-quality programs.

2. Maryland must make sure that all pre-kindergarten programs, irrespective of whether they are provided by public agencies or private providers, are of high quality. To that end, Maryland should:
    a. Ensure that the standards for approval of pre-K program personnel are comparable to those set in the countries with the benchmarked early childhood education systems and, if not, establish a timeline for full implementation of those standards.
    b. Create a staffing system for approved Maryland early childhood providers that is fully integrated with the proposed statewide career ladder system described under Building Block #6
    c. Strengthen the program of support for the professional development of pre-K teachers to enable them to earn the certificates defined by the new career ladder
    d. Require public and private providers to achieve EXCELS Level 5 in order to receive State funding for 3 or 4–year–old students. Initially a provider must achieve at least EXCELS Level 3 with a plan approved by MSDE to achieve Level 5 within 5 years

3. In order to achieve the expansion of programs for 4–year–olds and low–income 3–year–olds in Recommendation 1, the supply of high quality providers and early childhood educators based in the community rather than in schools must be increased significantly. The Commission recognizes this will take time, but actions such as increasing incentives for teacher certification (perhaps establishing a bachelor degree program for educating children with and without disabilities from birth to age 8) and implementing a professional development system with incentives that provides pathways for current and prospective providers to increase their quality are critical. Chapter 377 of 2015 required a workgroup to develop a professional development plan for early childhood education. The workgroup's report, which can be found here (http://earlychildhood.marylandpublicschools.org/system/files/filedepot/21/pd_master_plan_report_-_final_jan_21_2016.pdf), includes these and other recommendations worthy of consideration.

4. Maryland, which has already developed standards for children in grades 3-8, must ensure that these standards are expanded and aligned for 3– and 4 year-olds through grade 8.

5. Maryland must assess the school readiness of every child entering kindergarten from public and private providers, either using the existing instrument (Kindergarten Readiness Assessment, KRA) or a new instrument developed in collaboration with Maryland's teachers. As a first step, MSDE in collaboration with kindergarten teachers and early childhood experts should evaluate the current KRA, which has been significantly shortened since its first administration, to determine if it is an appropriate assessment for Maryland school readiness. This readiness assessment should be administered by kindergarten teachers and used to align the kindergarten program for

each kindergarten student in ways that will enable him or her to get on track and stay on track for college and career readiness. (see BB #3 and #4)

Building Block #9 Institute a Governance System to Develop Powerful Policies and Implement Them at Scale

GAP ANALYSIS

Clear, internationally benchmarked goals, which are coupled to coherent, aligned policies, enacted through a close coupling between policy and practice

All the top-performing countries have ministries of education either at the state or national level. These ministries have no analogue in any unit of government in the United States. They are generally responsible for education at all levels, pre-K, elementary and secondary education and higher education. In most cases, these ministries sit at the top of a civil service structure for education that starts with classroom teachers and support personnel and moves up in a hierarchy to the top civil servant in the ministry. Master teachers and principals are paid about the same. They report to district and regional officials, who are paid more, who in turn report to the central ministry staff, who are paid more, and they report to the permanent secretary, who is the highest paid professional educator in the system. The ministry officials are widely regarded as the nation's leading experts on education matters. The ministries are typically assigned many functions that in the United States are assigned to separate bodies, such as licensing and standard-setting bodies. In most of these countries, policy direction for education is provided in a parliamentary system led by a minister who is a member of the majority in Parliament and can therefore be assured of the backing of the prime minster and the legislature.

Increasingly, the ministries of education have high-level units whose only job is to benchmark the standards, policies and practices of the other top performing nations, especially the changes the top performers are making to cope with the rapid changes in technology that are in turn creating major challenges in the nature of jobs and the economy. Most of these countries have well-worked-out systems to take this kind of intelligence and use it to plan big changes in the direction of national education policy. These plans usually involve widespread involvement of the public and education professionals in their preparation and the plans usually also include detailed implementation strategies. Indeed, it is usually the case that as much effort goes into the preparation for implementation as goes into the development of the plan itself. Because the system is an integrated, hierarchical civil service system, program planning is tightly coupled to implementation planning, and implementation planning is tightly coupled to actual implementation. Because leadership for these changes in direction is provided by the party in power, the changes being planned and carried out by the civil service have the backing of the whole political structure.

None of this is true in Maryland, nor in any state in the US. Pre-K through 12 spending and accountability are highly decentralized. School superintendents do not report to state department of education officials. The Chief State School Officer (i.e., State Superintendent) is not the highest paid professional educator, nor is there a reporting line that goes from master teacher and principal up through the hierarchy to the Chief State School Officer. Responsibility

for running the higher education system and the Pre-K to 12 system is widely distributed. In the US, policies and practices of the world's leading systems are not routinely benchmarked. Many different bodies have independent authority for specific parts of the education system and not infrequently work at cross purposes with one another. The system for governing education in Maryland, like the system throughout the United States, can best be described as highly fractionated. In practice, only Massachusetts among US states, at a particular point in time, was able to create a coalition that bridges this kind of fractionation to create and implement a highly coherent major change in policy and practice. That fleeting effort to overcome a weak governance structure was then followed, years later, by changes in the structure made by a determined governor, changes that unified previously entirely separate governing structures under one roof. This structure remains in place today.

The question for Maryland is how it can move to an education system that gets results comparable to those achieved by the top performers with the highly decentralized governance system it has. That will require the state to find a way to get the same kind of coherence and power from its system as policy is made and implemented without transforming its governance structure to do it. An innovative approach to education governance will have to be found to accomplish this task.

Bridge to Excellence Master Plans

All of these issues came to the fore in 2002, when the legislature passed the Bridge to Excellence in Public Schools Act, translating the Thornton Commission recommendations into law. Then, as now, the core challenge was finding a way to connect school finance to a broad education reform program that would enable the students in the State to reach very ambitious new performance targets.

The new school finance formulas created by the Act were used to calculate how State education aid would be distributed to Maryland school districts. After that, it was up to the districts to decide how to use the money. School systems were required to submit "Master Plans", essentially five–year strategic plans that described how the additional education aid would be spent to improve student achievement. The State Superintendent was given authority to review and approve the master plans, require revisions to plans, and to withhold State aid if an LEA plan was unsatisfactory or if sufficient progress in improving student achievement was not being made.

In theory, then, Thornton included a system for holding school districts accountable for the way they used the considerably increased funds they would be getting. This was a crucial feature of the Thornton plan, especially in light of the OECD finding, referred to in the discussion of Building Block #2, that above a total of US$50,000 spent on a student's education from the first grade through the end of grade 10, there is very little correlation between how much money is spent and increases in student performance across systems. In other words, above a certain funding level, *how* the money is spent is at least as important as how much is spent. If that is

true, then Maryland must find a way to hold the schools and districts accountable for spending the money in a way that is highly likely to produce the expected result in student performance.

Master plans were reviewed by the State, but MGT of America found in a 2008 State–mandated report entitled, An Evaluation of the Effect of the Increased State Aid to Local School Systems Through the Bridge to Excellence Act, that while there were modest student gains over the 2003–2008 phase in of the Act, most LEAs and schools were not implementing changes in policy and practice for which there is clear evidence of effectiveness. Further, MGT found that the accounting systems used by LEAs did not track how the additional aid was spent.
Thus, while the master plan approach was innovative at the time, and in theory held school systems accountable for the use of education aid, it did not work as had been intended. Such a system will only work if there are published criteria for review that are related to what research tells us about what will work, and the entity charged with reviewing and approving the plans and their implementation has the capacity and the authority to tie resource allocations to successful implementation of the plans. Up to the present, MSDE has only had the capacity to review master plans primarily for compliance with the specific statutory requirements of the Bridge to Excellence Act and ESSA (previously NCLB and other federal statutes).

As noted previously, the top performing countries are getting substantially better results at a cost no greater than Maryland's current cost. They are able to do this not only because they have more effective interventions, but because they have a different *system* of education. "System" does not refer simply to the arrangement of schools, districts and central national or state agencies nor does it refer to an organization chart of the system or any part of it. It means the contents of each of the 9 Building Blocks and the way those building blocks are connected to each other in a way that, in the top performing countries, leads to the operation of the whole in which each part and element of the whole system supports all the others in a harmonious and mutually reinforcing way. In such systems, the policies are designed to provide positive incentives to all the actors to work hard to achieve what the public wants for students and also provides the capacity in the schools and elsewhere needed to achieve those goals. That is what is meant by system. One of the most important findings from international comparative research on education is that it is difficult if not impossible to get consistently high student performance without a design for governing education that has the capacity and authority needed to create and maintain such a system.

RECOMMENDATIONS

One of the methods used by APA, as discussed earlier in the report, is the "successful schools" method, which involves finding schools that are successful in producing the desired outcomes and finding out what it costs to run those schools. The Commission has decided to use what could be called the "successful nations" method to determine the costs of getting Maryland schools to match the performance of the schools with the most successful education systems. The methods used by those countries are captured in the 9 Building Blocks around which the Commission has organized its work. The governance question, then, is how to create a governance design for Maryland education that is capable of creating a high performance

system for Maryland and that holds Maryland schools and districts accountable for implementing the strategies captured in the 9 Building Blocks document, as adapted for use in Maryland by the Commission. Put another way, the question is how to set up a governance mechanism for implementing the Commission report that maximizes the chance that the Commission recommendations will be well and truly implemented.

While the general approach of the successful nations method is similar to the successful schools model, the nature of the criteria used to judge LEA master plans would be very different. Instead of describing particular interventions that must be used, the criteria would focus on , for example, whether a district is doing what is required to find, hire, train and provide working conditions that would attract very high-quality teachers and enable them to do the best work of which they are capable. It is the difference between telling a surgeon which procedure to use, on the one hand, and on the other, setting up a system that will produce first rate surgeons and provide the resources they need to do the best surgery of which they are capable, using their best judgment in each individual case. The task in this case is to establish a governance and accountability structure for implementing the Commission's recommendations similar in form but very different in practice from the structure established by Thornton, a structure that stands on what was learned from Maryland's experience with Thornton.

1. To make sure that the Commission's recommendations are implemented as intended, Maryland should establish an "independent entity" to guide and direct the implementation. That independent entity, a governmental body, should be temporary, authorized to perform its function only during the transition to the new system, after which it should sunset (e.g., after 10 years).

2. This independent entity must be non/bi–partisan and truly independent, although ultimately accountable to the Governor and General Assembly that create it and to the students, educators, and citizens of the State. Its membership must be broadly representative with individuals possessing the knowledge and expertise to fulfill its mission.

3. The independent entity should work in collaboration with the State Board of Education, MSDE, LEAs, teachers' unions, and other stakeholders, but must have some jurisdiction over all the agencies and departments that will be directly involved in implementing the Commission's recommendations. The functions assigned to the independent entity must be supported by sufficient professional and support staff to meet their responsibilities and include:
    a. Developing a detailed plan for implementation of the Commission report, with goals, milestones and measurable interim objectives for all relevant government agencies and departments, including the schools. The Commission will provide a more detailed implementation plan of its policy recommendations in its final report;
    b. Reviewing and approving implementation plans (Educational Excellence Strategic Plans?) submitted by all relevant government agencies, including higher

education, and LEAs that provide the strategies and use of funds to implement the Commission's recommendations aligned with the independent entity's implementation plan;

c. Collecting data and conducting analysis of the implementation of the Commission recommendations and reporting to the legislature, the Governor and the people of Maryland every two years on the progress made against the operating plan and the challenges ahead and recommending any new legislation that, in the opinion of the independent entity, needs to be enacted to improve the probability that the outcomes envisioned in the Commission report will be achieved;
d. Commissioning analyses and evaluations of the implementation of the Commission's recommendations that may further the Commission's overarching goal to make Maryland's education system world class;
e. Awarding "seed" grants for innovative proposals (i.e. research and development) to further the Commission's ultimate goal of making Maryland's education system world class; and
f. Providing technical assistance and training to, and monitoring implementation actions of, the various Maryland government agencies, LEAs, higher education institutions, and others involved in implementing the Commission's recommendations.

4. In order to ensure that the students of Maryland are getting the results intended by the Commission, the State must give the independent entity the authority to withhold increases in State education aid if an LEA has not provided an implementation plan that is approved by the independent entity or if an LEA is not making demonstrable progress with implementation the Commission's recommendations in accordance with its approved plan. The independent entity would establish criteria for initial approval of LEA plans and annual reviews of progress based on the Commission's report and recommendations.

5. Once the new College and Career Ready standard is implemented in the schools (see Building Block #3 and #4), about mid-way through the envisioned 10-year implementation period, the State should base its school accountability system, in accordance with ESSA or its successor, mainly on the proportion of students achieving the College and Career Ready standard by Grade 10 and the proportion reaching that standard by Grade 12, as well as the rate at which that proportion is increasing.

6. The State Board of Education and MSDE should continue to monitor low–performing school systems and schools, and if a system or school is falling behind with little or no signs of improvement, they should send in a team of experts to review and analyze, holistically, what is happening in the school and make recommendations for a plan of action to the local superintendent and board of education.

7. Maryland should become part of the network of nations, states, provinces, schools and districts in the OECD PISA survey, so that it can compare itself to over 100 leading education systems around the world on both the achievement of its students and the strategies that governments at every level are using to get high achievement and high equity.

8. At the end of the implementation period of the Commission's recommendations, an evaluation of whether the Commission's goals have been achieved and the effectiveness of the independent entity should be required.