Virginia Commission on Youth

COMPARISON OF ACADEMIC ACHIEVEMENT IN VIRGINIA WITH LEADING INDUSTRIALIZED COUNTRIES

POSSIBLE POLICY APPROACHES IN ITALICS

ADVISORY GROUP COMMENTS IN RED

TEACHER PREPAREDNESS/EFFECTIVENESS

Findings/Conclusions	Draft Recommendations
Finding #1 – Teacher Recruitment The top-performing countries which were studied do two things to maintain their high quality teacher workforce: they maintain a high level of selectivity for individuals interested in entering the teaching profession and they compensate first-time teachers well. The hiring decision is viewed as extremely important, considering that the hiring of an individual could result in 30 years of either effective or inferior teaching. Only one in ten applicants is accepted to the teacher-training programs in Finland and one in six applicants is accepted in Singapore. Top-performing school systems recruit their teachers from the top third of each cohort who graduate: the top 5% in South Korea; the top 10% in Finland; and the top 30% in Singapore and Hong Kong. Forty-seven percent of teachers in the United States graduated in the bottom third of their college classes, 30 percent in the middle third, and only 23 percent in the top third. Furthermore, in the United States, the teaching profession ranks in the middle range of occupational prestige, well below traditional higher-status professionals such as physicians, engineers, and attorneys, and well above blue collar occupations such as police, plumbers, and carpenters. However, competitive high salaries, comprehensive training, and high social status standing make teaching a sought-after career option in Singapore, South Korea, and Finland. There are 37 colleges and universities in Virginia with approved teacher preparation programs. The Virginia Teaching Scholarship Loan Program	1. Raise the value of the teaching profession in Virginia. *a. Request the Governor and the Secretary of Education develop and implement approaches to make teaching a more attractive career choice.* *b. Request the Governor and the Secretary of Education develop and implement promotional programs and marketing which addresses the value of the teaching profession.* The Advisory Group concurred that a strategy was needed to put the "positive" back in the teaching profession. An Advisory Group member noted that a strong teaching force could be used by the Commonwealth as an economic development strategy. The Commonwealth may want to set a long-term goal to promote the teaching profession and show that teaching is a valued profession. 2. Develop and implement a rigorous teacher recruitment mechanism. *a. Request the Governor and the Secretary of Education develop and implement a rigorous teacher recruitment mechanism.* *b. Recruit top academic achievers who are rising college freshman or already enrolled in college.* The Advisory Group stated that class ranking should be included in recruitment efforts, not just SAT or ACT scores.

(VTSLP) provides financial support to students who are preparing to teach in one of Virginia's critical shortage teaching areas. A selection panel representing teachers, college and university faculty, professional organizations, and Department of Education personnel chooses recipients who may receive a scholarship-loan for as much as $3,720. Upon completion of the teacher preparation program, the scholarship recipient shall begin teaching in the public schools of the Commonwealth in the first full academic year after becoming eligible for a teaching license and shall fulfill the teaching obligation by teaching continuously in Virginia for the same number of years that he was the beneficiary of such scholarship. In 2007, the Two-Year College Transfer Grant Program (CTG) was passed into law in Virginia. Under this program, qualifying students completing their Associate's Degree at a Virginia two-year public college and then transferring to a participating Virginia four-year college or university may receive the new CTG award.	3. <u>Provide incentives for early identification and attraction of high-performing, high ability candidates</u>. a. *Request the State Council of Higher Education in Virginia (SCHEV) and the Virginia Community College System (VCCS) review Virginia's existing scholarship programs, such as the Virginia Teacher Scholarship Loan Program and Virginia's College Transfer Grants, and make recommendations for building awareness for recruiting highly qualified candidates into the teaching profession.* b. *Develop dual enrollment and articulation agreements to establish a career pathway model in Virginia for recruiting high-performing teacher candidates and facilitate their entry into the teaching profession. Such a review will include dual enrollment, Virginia's two-year associates degree programs, articulation agreements with Virginia's teacher preparation programs, and master's degree program requirements that acknowledge teacher candidates who meet other criteria of highly qualified teachers.* The Advisory Group stated that one approach would be to make an education degree a "bargain" for highly qualified candidates. This would be similar to the loan repayment programs for physicians who agree to work in underserved areas. One Advisory Group member suggested the Commonwealth launch a statewide initiative to increase the number of teacher recruits who graduate high school in the top third of their class within the next five or ten years. The Virginia Manufacturers Association commented that adjunct faculty should be pursued as STEM educators in order to attract qualified candidates who are willing to teach a section or a class while employed in industry, after transitioning from military service or having recently retired. The insistence upon pursuing a single strategy of teacher program educated personnel for only full-time employment is inadequate and, perhaps more expensive and less effective than a diversified approach to hiring whereby a pool of qualified adjunct faculty could be developed regionally across the Commonwealth. (This is a similar model to the community colleges and Universities.)

Finding #2 – Quality of Teacher Preparation Programs Teacher education and preparation are significantly related to student achievement. Various studies have estimated how much of the variability in student achievement can be explained by the quality of the teacher. Ineffective teachers have negative longitudinal effects on student learning. If students have a less-effective teacher in the first year and the highest-level teachers for remaining years, their achievement will never exceed that of students who are assigned effective teachers for all years. All educational systems require prospective teachers to receive professional preparation in both subject matter and pedagogy, or expertise in knowing what and how to teach. Leaders in Finland attribute their students' success in learning to intensive investments in teacher education; all teachers receive three years of high-quality graduate-level preparation. Most teachers in Finland hold master's degrees both in their content area and in education. In addition, their preparation is aimed at learning to teach diverse learners—including special needs students—with a strong focus on how to use formative performance assessments to enhance student learning. In Virginia, an alternative route to teacher licensure is available through the recommendation of the individual's employing Virginia school division or nonpublic school. A three-year nonrenewable license can be issued through satisfying endorsement course work, experiential learning, or by meeting the provisional-special education requirements.	<u>Raise the rigor of teacher preparation programs</u>. *a. Require all student teachers to be supervised and jointly evaluated by an experienced teacher, principal, and university advisor.* *b. Request the State Council of Higher Education of Virginia (SCHEV) review teacher practicums to ensure the inclusion of a variety of experiences in addition to classroom teaching, such as observation of lessons, conferences with teacher, or participation in extracurricular and professional development activities.* *c. Strengthen the exit requirements of teacher education programs to include criteria such as completion of required courses, examinations, project assignments, and a teacher practicum.* *d. Expand the use of performance-based assessments proposed in the Virginia State Board of Education Guidelines for Uniform Performance Standards and Evaluation Criteria for Teachers for beginning teacher licensing as a means of determining effectiveness before a teacher receives a professional license.* *e. Request the Board of Education be advised of the findings from the Commission's study regarding the importance of quality teacher preparation programs and include Virginia's alternative licensing provisions as part of their comprehensive review of Virginia's Licensure Regulations for School Personnel.* The Advisory Group concurred that teacher preparation, alternative licensure provisions, and classroom management requirements in teaching education programs be reviewed. The Virginia Manufacturers Association commented that there was a need to reform teacher licensure to insure that engineering teachers have an engineering degree or at least significant career experience in an engineering field following a mathematics, science, technology education, or engineering technology degree.
Finding #3—Teacher Support and Development One of the most critical findings from this comparative study is the importance of sustaining the quality of the teaching force. There is abundant evidence that shows teachers who receive substantial high-quality professional development help students achieve at higher levels. Quality staff development has evolved in high-performing countries from a remedial support system which focused on individual improvement into a dynamic, reflective, and continuous improvement process.	<u>Improve Virginia's teacher professional development practices/ programs</u>. *a. Request Virginia's teacher preparation programs include best practices that translate to high quality professional development to match teachers' training needs.* *b. Recommend that additional time be committed to professional development and identify options for providing professional development within existing mechanisms.* *c. Provide state funding for school divisions to provide high quality*

Top-performing countries have developed rigorous systems to connect professional development and classroom teaching. In Singapore, teachers receive 100 hours of professional development; in the Netherlands; they receive more than a month; in South Korea, all third-year teachers must complete a formal training program for four consecutive weeks, six days a week, during their winter or summer break, with some financial aid available. In China, teachers at the induction stage, practicing teachers, and administrators are required to observe and provide feedback on a certain number of teachers' lessons each year. These steps are built into teachers' career ladders. Teachers in China are also classified into four grades to denote their professional status, and promotion from one grade to the next often requires demonstrating lessons, contributing to induction of new teachers, and publishing in journals or magazines about education or teaching. In the United States, mentoring and induction systems often are narrow and sporadic add-ons to non-collaborative organizational structures. American teachers work in "egg-crate" classrooms and have less time to interact with their peers or with mentors. Mentors frequently do not teach the same subject or grade level as new teachers and may not even teach in the same building. Finally, teachers in high-achieving countries spend less of their time teaching classes; therefore, they have more time to do collaborative planning and engage in professional development.	*professional development opportunities that correspond with teachers' professional needs.* d. *Create policies that encourage school divisions to hold public instruction workshops to demonstrate exemplary teaching practices.* One Advisory Group member stated that professional development opportunities need to be appropriate, rewarding, and interactive. Moreover, there needs to be meaningful induction for apprentice teachers, and best practices should be disseminated to teachers.
Finding #4 – Teacher Evaluation All countries in this study (except Finland) tend to use students' achievement data to monitor teacher practices and supplement this information with qualitative assessments, such as peer reviews and classroom observations. Teacher appraisal policies vary greatly country to country. In Singapore, teachers' performance is appraised annually against 16 different competencies. Competencies include teacher contribution to the academic and character development of the students in their charge, their collaboration with parents and community groups, and their contribution to their colleagues and the school as a whole. Teachers who do outstanding work receive a bonus from the school's bonus pool. It is important to note this individual appraisal system is not based solely on student test scores, but is developed and implemented within the context of the school's overall goal for educational excellence and a strong system of professional accountability.	<u>Implement teacher evaluation policies which encourage educational excellence and professional accountability</u>. *Implement faithfully and institutionalize, through appropriate funding, the revised teacher evaluation system policy guidelines in the Virginia Board of Education's Guidelines for Uniform Performance Standards and Evaluation Criteria for Teachers. Also, provide financial support to implement the Board of Education's Guidelines for Uniform Performance Standards and Evaluation Criteria for Principals and for Superintendents.* An Advisory Group member stated that data should be used to improve teacher and student outcomes, not only for accountability. Moreover, funding the evaluation system is important to ensuring that it will be successful.

	The Virginia Manufacturers Association noted that there was no discussion about seniority-based tenure systems among the comparison education systems. It would be instructive to know if there are any data about whether the competing countries have a formal or informal seniority-based tenure system.
Finding #5 – Teacher Compensation Most of the high-achieving countries have policies that align teacher compensation rates with other highly regarded professions. Annual earnings for South Korean lower secondary teachers are almost twice the level of national income. In contrast, teachers in the United States earn less than the national per capita income, with an average teacher salary ratio of .97 to GDP per capita. This ratio is 2.0 in South Korea. In the United States, teachers earn an average starting salary of about $36,000, lower than the averages of $43,635 for computer programmers, $44,668 for accountants, and $45,570 for registered nurses. Teacher pay is not only lower than other occupations requiring the same level of education, but also has been falling farther and farther behind over the past 60 years. Teacher salaries are related to class size; if spending levels are similar, school systems make trade-offs between smaller classes and higher salaries for teachers. However, the Programme for International Student Assessment (PISA) data show that higher teacher salaries, not smaller class sizes, are associated with better student performance. Teachers in Shanghai and Singapore receive extra pay and promotions for high student achievement. Conversely, Finland and Canada have rejected merit pay due to the lack of an empirical research base supporting the value of such an approach. However, these two countries encourage extensive dialogues between principals and teachers about student progress. Strategic compensation is an approach to professional pay for teachers that emphasizes not only accountability and rewards for student learning, but also for teacher learning and teacher leadership. By incorporating student achievement, professional development, collaboration, teacher leadership and measures of teaching effectiveness into compensation decisions, strategic compensation seeks to reward the most effective teachers and teacher leaders for using and spreading their expertise to other teachers in their schools and districts. In Virginia, Salem City has implemented the Growth Project to measure and report academic growth for all students, to use student growth as the	<u>Study/revise Virginia's teacher compensation system to include components that foster excellence in teaching</u>. *a. Provide funding for teacher salary increases.* *b. Provide funding based on a strategic compensation model such as Salem's City Schools Growth Project.* *c. Provide funding for establishing a differentiated compensation system based on teacher performance.* An Advisory Group member suggested the Commonwealth conduct a market analysis, by region, to ascertain whether teachers were being paid salaries comparable to other occupations with similar educational requirements. Evaluate Virginia's teacher career pathways and make recommendations to ensure teachers' compensation structure promotes career satisfaction. An Advisory Group member stated that, before considering differentiated compensation and other types of reward systems, Virginia teachers' salaries should be raised. The Virginia Manufacturers Association noted the Commission's preliminary report focuses on wages for teachers and the international differential. It would be advisable to look at total compensation to understand where funds are spent in the United States versus the international countries studied. Healthcare, sick/personal/vacation and pension/retirement benefits are most likely an additional 35 percent of a Virginia teacher's compensation. Wages alone do not provide an effective comparison to the other countries for purposes of changing public policy. It would be beneficial to know the percentage of teachers on a 9-, 10- or 12-month contract.

centerpiece in teacher and leader evaluations, and to research strategic compensation models. The Salem City Schools Growth Project is a highly participatory process in which teachers and leaders are collaboratively designing systems to: 1) measure and report student growth in all grade-levels/content-areas; 2) align professional evaluation systems to ensure that student growth is the centerpiece of teacher and leader evaluations; and 3) research strategic compensation models.	

STRUCTURE AND SUPPORT OF THE EDUCATIONAL SYSTEM

Findings/Conclusions	Draft Recommendations
Finding #1 – Principal Quality The international comparison indicated that the top performers have paid attention to principal quality, particularly instructional leadership. For instance, Singapore has a unique approach to identifying and developing leadership capacities. Throughout Singapore, talent for leadership is proactively identified and nurtured. After three years of teaching, teachers are assessed annually to determine which of three career paths would best suit them: • Teaching track (including steps of Senior Teacher, Lead Teacher, Master Teacher and finally, Principal Master Teacher); • Senior specialist track (specialists in curriculum, instructional design, educational research, statistics, etc.); and • Leadership track (including trajectory of Subject Head/Level Head, Head of Department, Assistant Principal, Principal, and Superintendent). Singapore recruits the best from the talented pool of their teachers and provides top-level training to prepare them to become leaders. In 2008, Canada employed the leadership model. This model includes a strong mentoring program that has reached over 4,500 principals and vice principals, and a new province-wide appraisal program for school leaders. In the United States, there is no well-defined "teacher-to-leader" career path, nor are there policies to cultivate a high-quality talent pool. Any teacher can train as a principal or school head, and then apply for a position in a school. Despite this, there are concerns that	<u>Develop leadership mentoring and development programs that target the skills, knowledge, and attributes of effective leaders</u>. *a. Implement, fund, and ensure professional development provisions are included in the* Guidelines for Uniform Performance Standards and Evaluation Criteria for Principals *adopted by the Virginia Board of Education in 2012.* *b. Develop leadership policies and practices, in partnership with Virginia's education associations, to identify and develop promising teachers to assume official leadership positions.* c. *Request the Department of Education develop a Request for Proposal (RFP) for a Center for Research on Teacher and Leader Excellence to promote best practices in instructional leadership developed by Virginia's institutions of higher education and to coordinate with other states' leadership programs across Virginia's school divisions.* An Advisory Group member stated that best practice research should be promoted. Professional education organizations can assist with training and opportunities for collaboration with peers for their members. Funding for a Center for Research on Teacher and Leader Excellence is unlikely.

soon there may be a shortage of qualified individuals to fill school leadership positions and promote school improvement. Approximately half of the school divisions surveyed reported a shortage in the labor pool for K-12 principal candidates, regardless of the schools' grade level or whether they were located in rural, suburban, or urban areas. The major factors that keep those who were identified by their school principal as leaders or having leadership potential from choosing to be school principals are testing/accountability pressures, job stress, amount of time required, and societal problems that make it difficult to focus on instruction.	
Finding # 2 – Instructional Time and Time Spent Learning Teachers in the United States spend more time per week engaged in instruction than any of the compared countries, all of which outperform the United States on international comparative assessments. The Organisation for Economic Co-operation and Development (OECD) found that primary teachers in the United States spent an average of 1,097 hours a year on instruction (or six daily lessons of 50 minutes), while South Korean teachers spent a total of 840 hours on instruction and Finnish teachers provided instruction an average of 677 hours a year (or about four daily lessons of 45 minutes). Teachers in high-achieving countries spend less time teaching classes; therefore, they have more time to do collaborative planning, to provide feedback individually to students, and to reach out to and engage families. In addition, many of the top-performing Asian countries, compulsory instruction during the school day is often supplemented by after-school lessons. An estimated 45 percent of students in South Korea and Shanghai spend up to four hours per week on supplemental after-school lessons; an additional 20 percent spend more than four hours a week. It is estimated that students in South Korea will spend almost two years more in learning than United States students by the end of high school. Thirty-six states have enacted policies allowing students to receive academic credit based on what they know, instead of how much time they spend in class, with the goal of making it easier for struggling students to catch up, exceptional students to race ahead, and students facing geographic and scheduling barriers to take the	<u>Investigate the Commonwealth's school day structure and school year structure</u>. *a. Request the Governor and the Secretary of Education review best practices in structuring adequate planning time for teachers.* *b. Request the Governor and the Secretary of Education study ways to maximize the instructional learning time for students including the allocation of the time in school day and the school year.* *c. Request the Governor and the Secretary of Education review the waivers of seat-time requirements and make recommendations to allow students to earn credit based on demonstrating course mastery. (This recommendation was included at the request of a Commission on Youth member.)* An Advisory Group member noted that school boards need control over school calendars. Additional time for planning may be achieved by adjusting the school day structure. Teachers need quality time (not necessarily more time) in the classroom and quality time to plan collaboratively.

courses they need. In 2005, New Hampshire became the first state to eliminate seat-time requirements. Michigan allows waivers for seat-time requirements on a district-by-district basis. In Virginia, Section 22.1-253.13:4 of the *Code of Virginia* allows division superintendents to establish procedures to allow qualified students to obtain class credit, without completing the 140-hour class, upon demonstration of mastery of the course content and objectives.	

EDUCATIONAL INNOVATIONS

Findings/Conclusions	Draft Recommendations
Finding #1 – Virtual Learning Virtual learning is a means to provide students with more opportunities to learn. The Commonwealth of Virginia has been recognized as a leader in virtual learning. The Virtual Virginia initiative currently offers 40 different online courses, including 24 Advanced Placement (AP) courses, foreign languages, and other core course. Approximately 2,500 students from 238 Virginia middle and high schools are enrolled. The reach of the program extends to 5,700 students who receive remedial instruction through online tutorials hosted by Virtual Virginia. This application of virtual learning will provide more college-level opportunities for students as well as increase graduation rates. According to a study conducted by the International Association for K12 Online Learning, China is planning to educate 100 million more students virtually over the next ten years. China is also training masters' level teachers how to teach online and have digitized their K-12 content curriculum since 2004. Singapore has blended online learning in 100 percent of their secondary schools. Ontario has four online versions for every high school class.	<u>Explore virtual learning opportunities in Virginia.</u> *a. Investigate multiple sources of funding, such as enrollment tuition, federal or state grants, or external funders, to ensure the sustainability of the virtual schools.* *b. Develop a plan to ensure equitable access to virtual learning resources, in particular for the at-risk student population.* *c. Request more research in the field of virtual learning to have a larger knowledge base about what makes virtual learning effective.* *d. Develop a plan to create more virtual middle, elementary, and remediation courses. Currently, more courses offered are high school courses, including AP or college level courses geared toward high-achieving students working toward college credits.* *e. Consider and plan teacher professional development to require a thorough knowledge of virtual teaching strategies and the workings of specific virtual teaching platforms.* *f. Investigate partnerships with other states to attain the most qualified teachers in specialized fields.* *g. Explore the best use of virtual learning and what works with ensuring access, success, and accountability.* h. *Recommend the expansion of virtual learning in Virginia based on the evidence of what works.* An Advisory Group member stated that the Commonwealth should carefully explore available virtual learning data (student "success"), accountability and equitable access.

Finding # 2 – Science, Technology, Engineering, and Mathematics–Healthcare (STEM-H) The primary driver of future global knowledge economy and concomitant creation of jobs will be innovation, largely derived from science and engineering advances. A successful K-12 STEM-H education is essential to sustainable scientific leadership and economic competitiveness. According to the National Assessment of Education Progress, about 57 percent of Virginia's 4th graders are not proficient in mathematics when they complete 4th grade, and about 68 percent of 8th graders are not proficient when they complete 8th grade. Moreover, the achievement gaps between student population groups, black/white, Hispanic/white, and high-poverty/low-poverty, are close to one standard deviation in size. International comparison data suggest that the underperformance of United States students in STEM-H disciplines might be explained by differences in United States standards, curricula, and textbooks. Traditionally, the standards and curriculum in the United States have been broad, but superficial. The overall supply of mathematics and science teachers has been rising to meet total demand, but there are local imbalances, with many schools struggling to fill openings in STEM-H subjects with qualified teachers. In particular, schools in high-poverty communities often do not have access to knowledgeable teachers. In addition, there are many mathematics and science teachers who lack the level of preparation in the subject areas and teaching that the professional community deems adequate. Too many middle and high school teachers teach STEM subjects out of their field. For instance, a 2008 study indicated that 40 percent of mathematics classes in high-poverty schools were taught by out-of-field teachers. Employers in many industries lament their findings that job applicants lack the needed mathematics, computer, and problem-solving skills to succeed, and international students fill in an increasing portion of elite STEM-H positions in the United States. In order to expand the number of students who ultimately pursue advanced degrees and careers in STEM-H fields, the action must start at the K-12 level. An inadequate preparation in STEM-H subjects in basic education has major consequences in higher education. STEM-H degrees account for only about one-third of all first university degrees awarded in the United States, compared to more than one-half of the degrees awarded in China, India, and Japan.	Develop a plan to implement rigorous and coherent STEM-H curriculum that deepens STEM-H learning over time. *a. Strengthen science education at elementary and middle school levels. Teachers can cover less material, but cover it in depth. For example, separate science into sub-subjects e.g., biology, physics, and chemistry starting at middle school level.* *b. Enhance Virginia's STEM-H curriculum to promote mastery.* *c. Develop gender-specific student programming to encourage participation in STEM-H-related classes.* *d. Build cooperation with STEM-H-related business and industry where students can obtain "real life" experiences in the technology sectors.* *e. Increase the proportion of in-field STEM-H teachers, particularly in Title I schools.* An Advisory Group member noted that the SOLs must be considered when there is discussion about strengthening science education and how to cover less material in depth. Consideration must also be given to the impact SOL testing has on how STEM courses are taught and whether the standardized tests used reflect best practice. Additionally, consideration should be given to what is best practice regarding teaching, content, and testing.

Finding #3 – The Achievement Gap The international assessments reveal a significant student achievement gap between the United States and other leading countries. For instance, PISA indicated that Shanghai, Canada, Finland, and South Korea all perform at between one-half and one proficiency level above the OECD average in mathematics. Canadian 15-year-olds, on average, are over one school year ahead of the 15-year-old in the United States in mathematics and more than half a school year ahead in reading and science. The PISA data indicate that socio-economic disadvantage has a particularly strong impact on student performance in the United States. For example, two students from different socio-economic backgrounds in the United States vary more in their academic achievement than in other countries. According to PISA data, Finland's between-school variance on student achievement was only 7 percent in contrast to the between-school variance in the United States of 36 percent. In American public school systems, effective teachers are among the most inequitably distributed resources. Among 39 countries, the United States ranked 36th in its ability to provide equal access to qualified math teachers for low- and high-socio-economic status (SES) students. Oftentimes, disadvantaged poor, non-white, and low-achieving students have the least access to effective teachers. The students who need the strongest instruction often are taught by teachers with the least experience and expertise. In addition, low income and minority students face higher teacher turnover and tend to be taught more frequently by beginning teachers. One effective strategy employed by Shanghai to improve weak schools is the commissioned education program. Under this program, top performing schools are assigned a weak school to administer. Such assignments are most easily implemented within the city; however, this type of exchange program is being used with poor rural schools. Such a system assists the weaker schools and benefits stronger schools by allowing them to promote teachers and administrators.	1. Develop strategies to improve the equitable allocation of high-performing teachers to needy schools. *a. Provide incentive pay to attract high-performing teachers to high-needs schools or high-needs fields and pay them additional stipends to serve as mentors or master teachers.* *b. Evaluate the results of Virginia's pilot program that awards up to $5,000 to teachers in schools identified as "hard-to-staff" that obtain high student achievement growth with students to gauge whether this program can be implemented statewide.* 2. Develop a statewide school turnaround strategy for low-performing schools. *a. Pilot a school turnaround pilot based on the Shanghai model.* b. *Provide incentive pay to attract high-performing/effective principals to struggling schools.* An Advisory Group member stated that strategies to incentivize teachers to teach in needy schools must include across-the-board pay incentives for all teachers. The number of "hard-to-staff" schools are increasing so any incentive must acknowledge this increase. Turnaround strategies should be developed with best practices in mind, i.e., comparing schools that have similar characteristics but differing student achievement levels.

THE INTERNATIONAL ACHIEVEMENT GAP

Findings/Conclusions	Draft Recommendations
Finding # 1 – The International Baccalaureate (IB) The International Baccalaureate (IB) Diploma Program was established in 1968 by the International Baccalaureate Organization in Geneva, Switzerland with the goal of delivering international academic standards. IB programs include the following elements: • Academic rigor – Students learn how to learn, analyze, and reach thoughtful conclusions. Diploma candidates function at a level of an introductory college student. • Comprehensiveness – Students encounter rigor throughout all disciplines. They refine areas of strength, and developmentally improve areas of weakness. • Internationalism – IB encourages students to think globally and the curriculum is based on international standards. Coursework and exams are graded by an international grading team. IB fosters consistent application of critical thinking skills to a wide range of subject matter. The IB program is offered in 3,464 schools in 143 countries and serves over one million students ages 3 to 19 years. The IB program is aligned with the recommendations of the Commission on the Skills of the American Workforce. Currently, there are 1,373 IB schools in the United States. There are 327 schools that offer the Primary Years Program (PYP) for students ages 3 to 12; 468 schools which offer the Middle Years Program (MYP) for students ages 11 to 16; and 778 schools that offer the Diploma Program (DP) for students aged 16 to 19. Virginia has eight PYP schools; 36 MYP schools; and 36 DP schools.	<u>Support, financially and otherwise, the expansion of IB programs</u>. *a. Support the expansion of IB programs at the elementary, middle, and high school level.* *b. Request more schools with IB programs to have dual credentials (having sister schools in other countries).* c. *Request more research on IB curriculum and assessment in order to develop and implement a similar but cost-effective system in every public school.* An Advisory Group member commented that funding is one important way to encourage more IB and dual enrollment and allows schools to attract and retain teachers qualified to teach these advanced classes. It is also important to encourage student interest, involvement, and access. Best practices on curriculum and assessment should be shared. Additionally, school boards should be allowed to set the school calendar so that students can compete with peers on a level playing field.
Finding # 2 – More Rigorous Middle School Curriculum International data indicates that the majority of United States students receive less rigorous content coverage than those in other higher performing nations. Secondary students in the United States rank lower compared to the rankings of elementary students on international tests. Consider the following findings: • United States students' international standing was stronger at the fourth grade level than at the eighth grade level in both	<u>Continue to examine and improve Virginia's academic standards to ensure the rigor and quality of standards</u>. *a. Develop more advanced math/science curriculum for grades 6, 7, and 8. For example, offer age-appropriate courses in biology, chemistry and physics in grades 6-8.* *b. Conduct more research on the best math/science textbook and pedagogical instruction practices in other countries. Suggest conducting an in-depth examination of the math curriculum developed by Singapore's Ministry of Education. This curriculum emphasizes*

mathematics and science relative to the 25 countries that participated in the Trends in International Mathematics and Science Study (TIMSS) at both grade levels.

- United States students' international standing was stronger in eighth grade than in twelfth grade in both mathematics and science relative to the international averages for the 19 other countries that participated in TIMSS at both levels.
- United States students' attitudes about science decline during the middle and high school years. Research has shown that students' attitudes about science drop dramatically at age 12 after attending middle school for six weeks.

Singapore has moved from a purely knowledge-transmission education model to one that emphasizes creativity and self-directed learning. Having been very successful as a knowledge transmission education system, Singapore is now working on curriculum, pedagogy, and assessments that value high-level, complex skills, as exemplified by their national education slogans, "Thinking Schools, Learning Nation" and "Teach Less, Learn More." In contrast, the United States is driving its educational system toward centralization of elementary and secondary education and is increasingly more test-oriented.

extensive coverage of a relatively small number of concepts at early stages, and integrates math concepts, such as algebra and geometry, in secondary grade levels.

c. *Request a comprehensive development of middle school math and science textbooks, including electronic and interactive versions.*
d. *Support the Virginia Board of Education's work in establishing rigorous, focused and coherent content at all grade levels, and reducing overlap and variation in implemented curricula across grades.*
e. *Offer students more opportunities to take challenging classes, beginning at the elementary school level.*
f. *Recommend schools review and revise curricula on a regular schedule, for instance, every five or ten years. Curricula should concentrate on the topics that must be mastered in order to understand the material presented in the following year.*

An Advisory Group member stated that increased rigor must follow higher learning curricula and specific professional development for teachers and administrators not precede them. Rigor for rigor's sake, without preparation, training and additional time for individual and collaborative planning, does not create a richer learning experience. With so much emphasis on standardized testing and time on task, rather than quality information and instruction, students may be passing the SOL but failing to achieve a level of higher learning. The Commonwealth must be able to compete internationally, particularly in STEM courses. Maintaining the same structure for the school day, providing less, not more, professional development, and employing old techniques and testing to teach and evaluate new information may not be the most constructive practices to allow our students to compete in the 21st Century.

This Advisory Group member suggested researching best practices at home and abroad; providing intensive and specific professional development; increasing rigor and accountability at the higher education level; and encouraging students to become teachers who can be comfortable in knowing they are well-trained, respected for their knowledge and commitment, and compensated accordingly.

Finding # 3 – Assessing Virginia's Students Performance The PISA study pointed out a sharp divergence between the types of testing used in the United States and those used in higher-achieving countries. Whereas United States tests rely primarily on multiple-choice items that evaluate recall and recognition of discrete facts, most high-achieving countries use open-ended, performance-based items that require students to analyze, apply knowledge, and write extensively. In the United States, some states are beginning to use international comparisons to benchmark their students' performance and determine whether they are challenging their students. Massachusetts and Minnesota participated in the 2007 TIMSS as independent "countries." Both Massachusetts and Minnesota scored well above the national and international average on the 2007 TIMSS; Massachusetts' fourth graders led peers in all 59 participating countries and states except Hong Kong and Singapore in math, and Minnesota students outperformed all but Hong Kong, Singapore, Chinese Taipei, and Japan in the same subject. Hong Kong and Shanghai, like Massachusetts, participate in the TIMSS as separate "countries. Massachusetts was able to conduct an item-by-item comparison of performance on test questions in its math and science curricula. The state noted that only 15 percent of students scored at the advanced level, compared with only about 40 percent in Hong Kong and Singapore. Eight states, in addition to Massachusetts, participated in the TIMSS as independent "countries": Alabama, California, Colorado, Connecticut, Florida, Indiana, Minnesota and North Carolina. Student performance assessment is a common practice in many countries. PISA data indicated that the rationale for assessments and the nature of instruments used vary greatly across the countries. However, high-achieving countries may only administer national testing at gateways, such as the end of primary, lower secondary, and upper secondary school. Schools and teachers are expected to assess student learning on a regular basis as a part of quality instruction.	<u>Recommend Virginia consider additional methods to measure students' achievement</u>. a. *Request the Virginia Department of Education design a new generation of assessment to assess a broader range of student skills and knowledge. Instead of relying on multiple-choice computer-scored tests, which educators and researchers believe cannot accurately measure higher-order thinking skills, the assessment should be diversified to include essay-type responses or even oral examinations.* b. *Request the Virginia Department of Education to develop a plan for Virginia to participate in the 2015 TIMSS and/or PISA assessment as a "separate" country. The plan will discuss recommendations regarding the most appropriate assessment, implementation issues, and potential public and/or private funding sources. The Department will report on the status of this plan to the General Assembly and to the Commission on Youth prior to the 2014 General Assembly Session.* An Advisory Group member noted that these were positive recommendations and stated the Commission may want to consider exploring multiple criteria to assess learning, diversify assessment, and compile and initiate best practices from around the world. The President for the Virginia Board of Education commented that the recently adopted Board of Education's Comprehensive Plan for 2012-17 outlines priorities goals, strategies, and performance measure for the Board. One priority is the identification of cost-effective ways to measure Virginia students' achievement on recognized international benchmarks.