

EDUCATION OVERSIGHT COMMITTEE

**Agenda
Monday, December 12, 2011
1:00 p.m.
433 Blatt Building**

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|------|--|----------------|
| I. | Welcome and Introductions | Mr. Robinson |
| II. | Approval of the Minutes of October 10, 2011 | Mr. Robinson |
| III. | Key Constituency
Dr. Tom Peters, Executive Director
South Carolina's Coalition for Mathematics & Science | |
| IV. | Subcommittee Reports | |
| | A. Academic Standards and Assessments | No Report |
| | B. EIA and Improvement Mechanisms
Action: Budget Recommendations for FY2012-13 | Mr. Drew |
| | C. Public Awareness | Mrs. Hairfield |
| V. | Election of the Chairperson and Vice Chairperson
Report of the Nominating Committee | Mr. Drew |
| VI. | Adjournment | |

Neil C. Robinson, Jr.
CHAIR

Barbara B. Hairfield
VICE CHAIR

Terry S. Brown

Dennis Drew

Mike Fair

Nikki Haley

R. Wesley Hayes, Jr.

Alex Martin

Daniel B. Merck

Joseph H. Neal

Andrew S. Patrick

J. Roland Smith

Ann Marie Taylor

John Warner

David Whittemore

Mick Zais

SOUTH CAROLINA EDUCATION OVERSIGHT COMMITTEE
Minutes of the Meeting
October 10, 2011

Members Present: Mr. Robinson, Mrs. Hairfield, Mr. Brown, Mr. Drew, Senator Fair, Senator Hayes, Dr. Merck, Rep. J. Roland Smith, Mr. Warner, Rep. Whitmire, Mr. Whittemore, and Superintendent Zais

I. Welcome and Introductions: Mr. Robinson welcomed members and guests to the meeting. He introduced the newest member of the EOC, Mr. Terry Brown, CEO of Edens & Avant and the business appointee of the Speaker of the House. The members of the EOC also introduced themselves to Mr. Brown.

II. Approval of the Minutes of August 8, 2011: The minutes of August 8, 2011 were approved as distributed.

III. Key Constituencies:

Josh Bell, Executive Director of Teach For America, Cynthia Wilson, Superintendent of Orangeburg 5, and Kwame Griffith, Executive Director of Teach For America-Atlanta addressed the EOC providing information on the status and goals of Teach For America in South Carolina. Mr. Bell detailed the recruitment, selection, training, and support of Teach For America members. There was also a detailed discussion of the transformational changes expected in students, schools and communities where Teach For America members exist. Mr. Robinson asked for information on any independent evaluations of the program. Mr. Bell and Mr. Griffith summarized the findings of a study done in Tennessee and North Carolina. A national study by Harvard University compared the competencies used by Teach For America in selecting candidates to the educational outcomes of students taught by Teach For America members. Regarding the future expansion of Teach For America, a comparison was made to the Mississippi Delta where over 520 Teach For America corps members currently are teaching due to an investment by the state of Mississippi in the program. By 2015 the vision is for South Carolina to have 265 corps members in the Pee Dee, Orangeburg County and Low Country. Cynthia Wilson discussed her personal experience with Teach For America first in Houston and now in Orangeburg 5. There were 76 teacher vacancies in Orangeburg 5 this year of which 11 were filled with Teach for America students. Ms. Wilson described how school districts pay the salaries and \$4,000 for each Teach for America student. When asked why she participated in the program, Ms. Wilson responded that the goal of Orangeburg 5 is to be in the top 5% of all districts in the state in five years. To make such dramatic improvements, she needs to do things differently which includes using the leadership skills, motivation, energy and excitement that the Teach For America students bring. Mr. Brown noted that in his company one of the most successful employees he has is a Teach for America alumnus. Mr. Brown stated that the business community should get behind efforts to expand the program in South Carolina.

Dr. Gerrita Postlewait, Chair of the State Board of Education and former superintendent of the Horry County School District, presented a new initiative adopted by the State Board of Education to create innovation zones. Dr. Postlewait described the board's proposal as a concept for a few districts in a few schools to experiment with new and innovative approaches to education and then to evaluate the results of the innovation to inform district and state policies and programs. Cornerstones of the proposal are the six principles of the Council of Chief State School Officers for . . . and student and parent partnerships where immediate feedback on the impact of the innovation on the learning environment would be provided. The focus on personalized learning coupled with financial flexibility is important. Dr. Postlewait then offered her personal reflections on how the proposal could be implemented. She noted that district and school budgeting never undergo a zero-based budgeting review. She proposed that districts must annually: define and understand the problems such as reading; determine actions to accomplish; determine research-based strategies and approaches to take; analyze data to determine if the actions were successful; and determine where the greatest breakthroughs are occurring, especially for children in poverty. Dr. Postlewait answered questions and offered to work with the EOC as well as other entities including the South Carolina Chamber of Commerce, the State Superintendent, Jim Reynolds, the Riley Institute, and SC Future Minds.

IV. Subcommittee Reports

- A. Academic Standards and Assessments: There was no report from the subcommittee.
- B. EIA and Improvement Mechanisms: Mr. Drew reported on behalf of the subcommittee concerning the budget review process for Fiscal Year 2012-13. Mr. Drew informed members that the EIA-funded agencies and programs had submitted program reports which will be considered by the subcommittee this fall. He reminded the members that last year the full EOC completed a survey ranking the EIA programs in order of priority. This year a sample of educators including school board members, administrators and teachers will be asked to complete a similar survey. Senator Fair advised the EOC of the importance of flexibility in meeting the financial needs of students and schools.
- C. Public Awareness: Mrs. Hairfield reported on behalf of the subcommittee. She noted that finding a new Communications Director has not been successful. One factor influencing the process has been the uncertainty over the future of the EOC. Mrs. Hairfield explained that she had consulted with the staff and the staff with the chairman have contracted for public awareness assistance with a state vendor, the Clare Morris Agency for the following projects: (1) social media training to make the public aware of educational achievements and challenges; (2) a communications strategy to highlight National Education Week; (3) updates and revision of the formats used to disseminate the 2020 Vision and updates to the status of reaching the vision which will be released in December 2011; and (4) a review of the EOC

website to make the information on the website more accessible and informative to the public. Mrs. Hairfield noted that the Education Accountability Act requires the EOC to conduct an on-going public information campaign to apprise the public of the status of public schools and importance of high standards for academic performance. The cost of the outside assistance is approximately \$10,000 as compared to the cost of hiring a Communications Director which totals approximately \$77,000 for salary and fringe benefits.

V. Special Action Items:

A. Report per Proviso 1.97.

Mrs. Barton summarized the key components of the Education Finance Act (EFA) of 1977. In the current fiscal year the General Assembly appropriated \$1,165,568,108 to the EFA (of which \$56.2 million was in non-recurring funds) for a base student cost of \$1,880. The EOC in 2003 proposed changing the EFA weights to reflect current costs and research-based intervention strategies. For example, the EOC recommended a weight for non-English speaking students and for students in poverty. All "regular" students in grades K-12 would receive a 1.00. No changes were recommended to the weights for students with disabilities.

This past session the General Assembly authorized a proviso (temporary law) in the state budget that asked the EOC to determine what would have been the financial impact to the state and to school districts if the EOC weights had been implemented this fiscal year. The proviso restricts the analysis to the base student cost as funded of \$1,880, the same EFA mechanism used, the revised index of taxpaying ability as developed by the General Assembly and the most up-to-date student counts. The results of the analysis were: (1) the additional cost of the state would have been \$74,700,842; (2) all districts except two would have received additional funds. The only two districts that would not have received more funds would have been York 2, which would have received \$78,822 fewer State funds and York 4, \$566,634 fewer State funds. The largest net increases would have been to the Greenville County School District, \$5.9 million, Richland 1 of \$4.6 million and Horry County School District of \$3.3 million. The report concludes with two options of how the General Assembly could have allocated existing appropriations to phase in the EOC weights. These options fund the add-ons at 70% by the State or 100% by the state with the general education weights funded at a base student cost of \$2,080.

Mr. Drew moved that the report be adopted. Mrs. Hairfield seconded the motion. The motion was adopted unanimously. The report will be submitted electronically to the chairmen of the House Ways and Means Committee and Senate Finance Committee.

B. EOC Objectives for 2011-12

Mrs. Barton described how the EOC annually adopts objectives that define the scope of the committee's work, allocate resources, and guide budget and proviso recommendations. The changes proposed reflect the following: (1) movement and planning for the next cyclical review of the accountability system which is due in 2013 per the EAA; (2) continued focus on improving reading proficiency; and (3) theme from the EOC retreat that more engagement and communication with public and higher education practitioners is needed to solve education problems. Mr. Robinson recommended that the objectives be amended to include supporting and promoting the innovation policy as adopted by the State Board of Education. Mr. Whittemore moved the adoption of the objectives as amended. Mr. Drew seconded the motion. The motion was adopted unanimously.

Having no other business, the EOC adjourned.

EDUCATION OVERSIGHT COMMITTEE

Objectives for 2011-2012

1. Continue the implementation of the Education Accountability Act of 1998, *as amended*, and fulfill other responsibilities assigned by the General Assembly including those within the Teacher Quality Act, the Parental Involvement in Their Children's Education Act, the Education and Economic Development Act and those made by special requests, including:
 - a. Monitoring the development of assessments and related resources linked to the Core Curriculum and communicating alignment with SC aspirations and instruction;
 - b. Monitoring instructional and assessment technology needs to facilitate on-line administration of the Common Core assessments;
 - c. Increasing the impact of the accountability system on decisions which impact state, school and student performance;
 - d. Ensuring the system is effective for the young people currently enrolled and for those young people to come;
 - e. Evaluating the progress of all schools including separate reporting for public charter schools and schools in technical assistance;
 - f. Reporting on growth in achievement across three years of PASS data for the four core academic subjects;
 - g. Reviewing the calculation of the improvement ratings; and
 - h. Supporting and promoting the statement of purpose adopted by the State Board of Education to encourage innovative practices in South Carolina public schools and other initiatives that encourage innovation and creativity.
2. Measure progress toward the 2020 Vision for statewide educational performance including:
 - a. Ensuring that no student is enrolled in a school rated At Risk
 - b. Working with stakeholder groups including higher education to understand state aspirations and the tasks necessary to achieve those;
 - c. Adjusting or expanding reporting methods and content to increase sensitivity to growth in performance; and increased knowledge of the performance of students disaggregated by student instructional needs (i.e., EFA and EIA program codes) for the four core academic subjects;
 - d. Recommending actions for policy, practice and funding to accomplish the 2020 Vision; and
 - e. Promoting more open dialogue about the gains, challenges and strategies to accomplish the 2020 Vision.
3. Increase the level of student reading proficiency by:
 - a. Examining the performance of students, individual and in groups, to understand how and where emphasis is needed in policy and practice;
 - b. Linking student performance to instructional strategies and policies and promoting those which are most effective;
 - c. Engaging the higher education community and other stakeholder groups in discussions of reading achievement to promote changes in teacher preparation and pre-kindergarten through grade twelve policies and practices; and
 - d. Working with the South Carolina Reading Achievement Systemic Initiative to promote a comprehensive reading policy.

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| <p>4. Develop a long-term strategy for increasing the utility of technology, including:</p> <ul style="list-style-type: none">a. Identifying the availability and distribution of virtual courses in public schools;b. Identifying lead districts and examining how technology in instruction has been supported, utilized and with what impact on student achievement;c. Identifying cutting-edge strategies for use of technology to address traditional education functions; andd. Promoting a statewide commitment for world-class technology in our schools. |
| <p>5. Examine the performance of students to achieve at the highest level including:</p> <ul style="list-style-type: none">a. Building a longitudinal PASS data base for the four core academic subjects; andb. Determining opportunities for high ability students to access the gifted and talented programs and advanced college preparatory work generally and in low-performing schools. |
| <p>6. Fulfill responsibilities outlined in the General Appropriations Act.</p> |

EDUCATION OVERSIGHT COMMITTEE

Subcommittee: EIA and Improvement Mechanisms

Date: December 12, 2011

INFORMATION

Budget and Proviso Recommendations, Fiscal Year 2011-12

PURPOSE/AUTHORITY

Section 59-6-10 of the Education Accountability Act requires the EOC to "review and monitor the implementation and evaluation of the Education Accountability Act and Education Improvement Act programs and funding" and to "make programmatic and funding recommendations to the General Assembly."

CRITICAL FACTS

TIMELINE/REVIEW PROCESS

August 1, 2011	EIA program report and budget request surveys online
August 25, 2011	Preliminary EIA revenue projections for FY13 made by BEA
September 19, 2011	EIA Subcommittee Meets and receive information on SC Geographic Alliance, Writing Improvement Network and Technical Assistance
September 30, 2011	Agency budget and proviso reports due to Governor
October 1, 2011	All EIA program reports and budget requests due to EOC
November 7, 2011	Subcommittee meets and EIA-funded programs are offered opportunity to present
November 10, 2011	First official revenue forecast for FY13 made by BEA
November 21, 2011	Subcommittee meets and makes budget recommendations

ECONOMIC IMPACT FOR EOC

Cost: No fiscal impact beyond current appropriations

Fund/Source:

ACTION REQUEST

For approval

For Information

Approved

ACTION TAKEN

Amended

**Not Approved
(explain)**

Action deferred

EIA and Improvement Mechanisms Subcommittee Recommendations for EIA Budget for Fiscal Year 2012-13

According to Section 59-6-10, the Education Oversight Committee is to “assist in, recommend, and supervise implementation of programs and expenditure of funds for the Education Accountability Act and the Education Improvement Act of 1984.” The law specifically requires the EOC to:

- (1) review and monitor the implementation and evaluation of the Education Accountability Act and Education Improvement Act programs and funding;
- (2) make programmatic and funding recommendations to the General Assembly;
- (3) report annually to the General Assembly, State Board of Education, and the public on the progress of the programs;
- (4) recommend Education Accountability Act and EIA program changes to state agencies and other entities as it considers necessary.

Each state agency and entity responsible for implementing the Education Accountability Act and the Education Improvement Act funded programs shall submit to the Education Oversight Committee programs and expenditure reports and budget requests as needed and in a manner prescribed by the Education Oversight Committee.

The General Assembly enacted the EIA in 1984, which was described by Governor Riley as a “comprehensive package of educational reform to provide an opportunity for and a challenge to our children and youth to reach for excellence.”¹ The programs and initiatives of the EIA were funded by one-cent increase in the sales tax. According to Section 12-35-1550, revenues from this tax are “deposited by the State Treasurer in the South Carolina Education Improvement Act of 1984 Fund as a fund separate and distinct from the state general fund.

Annually, the EOC requires each state agency and entity receiving EIA funds to submit a program and budget report. For the past several years these reports have been completed online. The EIA and Improvement Mechanism Subcommittee of the EOC then reviews the reports as well as any request for additional EIA funds. As in years past, the Subcommittee makes recommendations for the allocation of these funds. For Fiscal Year 2012-13, the Board of Economic Advisors on November 10, 2011 projected that the EIA will generate \$606,797,653 in revenues which is an increase of \$42,496,819 over the current year’s EIA appropriation base (Table 1). Per Proviso 1A.49., the surplus EIA funds are currently earmarked for school bus fuel costs.

¹ *The Education Improvement Act of 1984*, Governor Richard W. Riley.

**Table 1
FY2011-12 and FY2012-13 EIA Revenue Projections**

	Recurring	Non-Recurring	Total:
Fiscal Year 2011-12			
Appropriations	\$564,300,834	\$33,816,085	\$598,116,919
Revised EIA Revenue Estimate	\$582,020,648		
Fiscal Year 2012-13			
From additional FY12 EIA Revenues			
EIA Revenue Estimate	\$606,797,653		
Additional EIA Revenues Over FY12:	\$42,496,819	\$17,719,814	\$60,216,633

The Subcommittee proposes that the current year's recurring EIA base appropriation (Appendix A) be funded with the following budget and proviso amendments that would: (1) encourage collaboration with higher education, business and community leaders throughout the state to guarantee all students are college and career ready upon graduation from high school; and (2) promote innovation and transformation of our schools through public and private partnerships.

Table 2

EIA Budget Recommendations	EIA Base	Changes Recommended
	2011-12	2012-13
EIA Recurring Base Appropriation	\$564,300,834	\$564,300,834
Consolidation of Line Items:		
A. Line Items for Disabled Students Consolidated into Aid to Districts		
Handicapped Student Services	\$3,045,778	(\$3,045,778)
P.L. 99-457 Preschool Children with Disabilities	\$2,878,146	(\$2,878,146)
Aid to Districts (Consolidation and \$6.0 million increase for IDEA Maintenance of Effort)	\$37,736,600	\$11,923,924
B. Line items for teacher salaries and fringe benefits consolidated		
Teacher Employer Contributions	\$15,766,752	(\$15,766,752)
Teacher Salaries	\$77,061,350	\$15,766,752
Reduction of Line Items:		
Department of Disabilities & Special Needs (Teacher Pay)	\$763,653	(\$150,000)

	EIA Base	Changes Recommended
	2011-12	2012-13
New Line Items:		
Teach For America South Carolina	\$0	\$2,000,000
S ² TEM Centers SC	\$0	\$1,750,000
Innovation through Technology	\$0	\$32,896,819
TOTAL:		\$606, 797,653

The Subcommittee recommendations are based on the following objectives:

- Continued consolidation of EIA line items by consolidating all EIA line items for disabilities into the Aid to District line item appropriation and consolidating employer contributions for teachers into the teacher salary line item. After consolidation of these line items there will only be 42 EIA-funded programs, down from 71 in Fiscal Year 2008-09.
- Reduction of EIA appropriation to the Department of Disabilities & Special Needs (DDSN) for teacher salaries of \$150,000 as recommended by the agency to conform to reductions in the number of instructional personnel. DDSN requested \$613,653 for the base appropriation.
- **Investing \$1,750,000 in S²TEM Centers SC (Science, Technology, Engineering and Mathematics)** – To support existing and future companies with a trained workforce, the Subcommittee proposes transforming the five regional math and science centers and the South Carolina Coalition for Mathematics and Science at Clemson University into an entity for innovation, research and implementation in STEM education. The coalition would establish a formalized STEM education infrastructure plan funded with both public and private funds. Already, the Boeing Company has decided to invest \$750,000 over a three-year period to assist ten schools in integrating strategies to improve reading of informational text in the content areas of math and science. The results of the work in these ten schools will provide research and strategies to implement other structural changes in curriculum and learning. Other manufacturers including BMW, Michelin, and 3M are already supporting the work of the Coalition.
- **Teach For America South Carolina** – Having successful leaders in the classrooms of our most challenged schools is critical to changing the expectations and culture of many of our schools. The goal of Teach For America is to recruit top college graduates and professionals to teach in public schools in low-income communities, with high annual teacher turnover rates, and consistently low student achievement. To date, private funds alone have brought

31 Teach For America corps members to the school districts of Clarendon 2, Darlington, Florence 1, Orangeburg 3 and Orangeburg 5. The recommendation is to expand the program with both state and private funds. The goal is to have an additional 75 corps members teaching in South Carolina in 2012-13 and another 125 in 2013-14. The initial state appropriation would be \$2.0 million in Fiscal Year 2012-13 with a possible increase of \$1.0 million for FY14 and an increase of \$500,000 for FY15 pending the availability of funding. Excluding depreciation and amortization, the cost to the state for this initiative would be \$15,830 per teacher in FY13 for recruitment, selection and training. Corps members who teach for three years in the program receive their certification. School districts pay the entry level salaries of corps members with existing state, local and federal monies.

- Technology** – As the following table shows, funds for improving technology infrastructure have been limited in the past several years. The Subcommittee recommends an increase of \$32,896,819 in technology. Under current law, the K-12 School Technology Initiative composed of representatives from South Carolina Department of Education, ETV, the SC State Library, the Budget and Control Board’s Division of State Information Technology, AT&T, and the South Carolina Telecommunications Association, guide the distribution of technology funds to meet the schools’ need for software, hardware, connectivity, professional development and instructional technologies. Currently, funds for school technology are sufficient only to provide the state match for federal E-rate funds for network connectivity of \$8.3 million, provide the educational resource service DISCUS, and support eLearning, the SC Virtual School program.

**Table 3
Recurring Appropriations for Technology**

Fiscal Year	EIA	General Fund
1996-97	\$10,000,000	
1997-98	\$25,116,516	
1998-99	\$25,116,516	
1999-00	\$20,638,634	
2000-01		\$19,638,634
2001-02		\$19,638,634
2002-03		\$17,837,271
2003-04		\$16,312,614
2004-05		\$15,947,619
2005-06	\$13,683,697 *	
2006-07	\$13,683,697	
2007-08	\$13,683,697	
2008-09	\$12,886,895	
2009-10	\$10,171,826	
2010-11	\$10,171,826	
2011-12	\$10,171,826	

* Unallocated EIA cash balance used to fund technology

Sources: Annual General Appropriation Acts.

The Subcommittee recommends that Proviso 1.79. be deleted. The report required by the proviso was completed.

~~1.79. (SDE: Weighted Pupil Units Calculation) Of the funds appropriated to the Education Oversight Committee (EOC), the EOC shall calculate and publish the number of the weighted pupil units per weighting category in each district based upon the most recent 135-day average daily membership in each district and the weights as recommended in the most recent funding model developed by the Education Oversight Committee and suggested modifications made during Fiscal Year 2010-11 and make projections on how the revised weightings impact school districts for Fiscal Year 2011-2012. In making its calculations, the EOC must use the Index of Taxpaying Ability and projected base student cost as adopted by the General Assembly for the current fiscal year. The EOC must report its findings electronically to the Chairman of the Senate Finance Committee and Chairman of the House Ways and Means Committee by November 1 2011.~~

In addition the Subcommittee recommends favorable legislative action on the following:

P-16 Council – According to the Education Commission of the States, in 2008 38 states had established P-16 or P-20 councils.² The letter “P” refers to preschool while 16 or 20 refers to post-secondary education. For example, since 1995 Georgia has had a formal P-16 structure. Governor Miller first appointed the Georgia P-16 Council which was replaced in 2000 by the Education Coordinating Council. In 2006 more changes were made when Governor Purdue replaced the Education Coordinating Council with the Alliance of Education Agency Heads. The Alliance as charged with developing policies and programs to prepare students for 21st century. The overall goal of a P-16/P-20 initiative is to bring together “a variety of stakeholders, including education leaders across the education continuum, business leaders, state policymakers and other constituents” to address very specific issues.³

Leaders from Clemson University and the University of South Carolina addressed the EOC at its August retreat. In attendance from Clemson University were Dr. Mike Padilla, Director of the Eugene T. Moore School of Education and Associate Dean of Educational Collaborations, Dr. Larry Allen, Professor and Dean of the Department of Health, Education and Human Development, and Dr. Hans Klar, Assistant Professor in Education Leadership. Also on the panel was Dr. Lemuel W. Watson, Professor and the new Dean for the College of Education at the University of South Carolina who initiated the conversation about the need to have a more systemic approach to address educational outcomes in South Carolina.

These leaders noted that the role of higher education is changing. Universities must be responsible for education change and provide research, evaluation and expertise as

²Dounay, Jennifer. *Landmines P-16/P-20 Councils Encounter – and How They Can Be Addressed (or Avoided Altogether)*. November 2008. Education Commission of the States.

³ Ibid.

needed. Higher education also has a responsibility to school districts to provide staff and curriculum development to assist schools. There was consensus that teaching, research and service must be provided by higher education if public education is to be transformed. Dr. Watson also noted that a P-20 initiative is needed to connect data to instruction so that all children in South Carolina achieve. He emphasized the importance of the state having an innovative, creative, data system.

The EOC believes that a formal system of collaboration between public and secondary education is needed now more than ever in South Carolina. The existence of the Education and Economic Development Coordinating Council has been extended only until July 1, 2012. If all graduates of our public schools are to ready for college and careers, then the relationship between public and higher education must be virtually seamless. The EOC supports the creation of a P-16/P-20 Council and recommends that a standing subcommittee of the Council be established to:

- Improve data quality – According to a September 2011 report, the Southern Regional Education Board (SREB) found that South Carolina and West Virginia are the only two states that do not have the ability to match student-level P-12 and higher education data.⁴
- Establish and promote local partnerships between higher education and school districts;
- Improve teacher and leader effectiveness in our schools and districts, with special attention to improving reading instruction techniques and the training of guidance counselors; and
- Coordinate professional development and outreach to schools and districts. For example, several EIA-funded programs are housed at the colleges and universities of our state. The subcommittee would assist the P-16 Council in targeting resources and sharing research.

School and District Innovation -- The State Board of Education has adopted a policy to encourage and recognize districts and schools that are moving to a new “learning paradigm, shaping a new learning-centric, personalized system of education so that each individual – from early childhood through adolescence – is prepared for life, work, and citizenship in the 21st century.” The EOC supports the Board’s policy and will assist in the implementation of the program, serving on the Steering Committee.

Modified Diploma – Based upon the recommendations of the High School Working Group, the Subcommittee supports the creation of a modified high school diploma for students who have an Individualized Education Program and whose performance is substantially below grade level, even with the use of accommodations. Eligibility for students would be limited to those students able to access the standards only at less complex levels and with extensively modified instruction.

⁴ *Maximizing Education Data Use in SREB States*, Southern Regional Education Board, September 2011, <http://publications.sreb.org/2011/11E11_POP_Max_Ed.pdf>.

Appendix A

Education Improvement Act	2011-12
A. STANDARDS, TEACHING, LEARNING, ACCOUNTABILITY	
1. Student Learning	
Personal Service Classified Positions	58,629
Other Operating Expenses	136,739
Handicapped Student Services	3,045,778
High Achieving Students	26,628,246
Aid to Districts	37,736,600
School Health & Fitness Act – Nurses	6,000,000
Tech Prep	3,021,348
Modernize Vocational Equipment	2,946,296
Arts Curricula	1,187,571
P.L. 99-457 Preschool Children w/ Disabilities	2,878,146
Adult Education	13,573,736
Students at Risk of School Failure	136,163,204
High Schools That Work	<u>743,354</u>
Subtotal	234,119,647
2. Student Testing	
Personal Service Classified Positions	488,518
Other operating Expenses	332,948
Assessment / Testing	<u>17,652,624</u>
Subtotal	18,474,090
3. Curriculum & Standards	
Personal Service Classified Positions	126,232
Other Personal Service	4,736
Other Operating Expenses	41,987
Reading	6,542,052
Instructional Materials	<u>13,761,587</u>
Subtotal	20,476,594
4. Assistance, Intervention, & Reward	
Personal Service Classified Positions	1,236,436

Other Operating Expenses	1,174,752
EAA Technical Assistance	6,000,000
Report Cards	722,385
Palmetto Gold & Silver Awards	2,230,061
PowerSchool/Data Collection	5,000,000
Aid Other State Agencies	<u>121,276</u>
Subtotal	16,484,910
B. Early Childhood	
Personal Service Classified Positions	376,246
Other Operating Expenses	556,592
Alloc EIA - 4 YR Early Child	15,813,846
SCDE-CDEPP	<u>17,300,000</u>
Subtotal	34,046,684
C. TEACHER QUALITY	
1. Certification	
Personal Service Classified Positions	1,068,102
Other Personal Service	1,579
Other Operating Expenses	<u>638,999</u>
Subtotal	1,708,680
2. Retention & Reward	
Teacher of the Year Award	155,000
Teacher Quality Commission	372,724
Teacher Salary Supplement	77,061,350
Teacher Salary Supplement – Fringe	15,766,752
National Board Certification	68,564,000
Teacher Supplies	<u>12,999,520</u>
Subtotal	174,919,346
3. Professional Development	
Professional Development	6,515,911
ADEPT	<u>873,909</u>
Subtotal	7,389,820

E. LEADERSHIP	
1. Schools	0
2. State	
Personal Service Classified Positions	82,049
Other Personal Service	83,121
Other Operating Expenses	300,032
Technology	10,171,826
Employer Contributions	1,064,221
Subtotal	11,701,249
F. PARTNERSHIPS	
1. Business and Community	0
2. Other Agencies & Entities	
State Agency Teacher Pay (F30)	209,381
Writing Improvement Network-USC (H27)	182,761
Education Oversight Committee (A85)	1,193,242
SC Geographic Alliance-USC (H27)	155,869
Science PLUS	150,000
Gov. School Arts & Humanities (H63)	775,454
Wil Lou Gray Opportunity School (H71)	605,294
School for Deaf & Blind (H75)	7,176,110
Disabilities & Special Needs (J16)	763,653
John De La Howe School (L12)	363,734
School Improvement Council Project (H27)	127,303
Clemson Ag Ed Teachers	758,627
Centers of Excellence-CHE (H03)	887,526
Teacher Recruitment Program-CHE (H03)	4,243,527
Center for Ed, Recruitment, Ret, and Adv	31,680
Teacher Loan Program-State Treasurer (E16)	4,000,722
Gov. School Science & Math (H63)	416,784
Science South	500,000
First Steps to School Readiness	1,490,847

OFS-CDEPP	2,484,628
SC Youth Challenge Academy	<u>1,000,000</u>
Subtotal	27,517,142
G. TRANSPORTATION/BUSES	
Other Operating	<u>17,462,672</u>
Subtotal	17,462,672
TOTAL	\$564,300,834

* Non-Recurring Appropriations in FY12	\$33,816,085
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EDUCATION WEEK

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NAEP Results Show Math Gains, But 4th Grade Reading Still Flat

Proficiency continues to be elusive goal

By Erik W. Robelen

The nation's 4th and 8th graders have inched up in mathematics, new test data show, but the results are more mixed in reading, with 4th grade scores flat compared with two years ago.

Overall, achieving proficiency in reading and math on the **National Assessment of Educational Progress**, known as "the nation's report card," remains an elusive goal for the majority of American students. Only about one-third reached that level or higher in reading and 8th grade math, the 2011 data show. At grade 4 math, the figure was slightly higher, at 40 percent.

When viewed from a long-term perspective, the nation has made "major improvements" in math achievement over the past two decades, but in reading, the growth has been "quite small," David P. Driscoll, the chairman of the **National Assessment Governing Board**, which sets policy for NAEP, said at an event last week announcing the results.

Doris R. Hicks, also a member of to make gains on NAEP in both math and reading in most years."

NAGB and the principal of a New Orleans charter school, lamented that 4th grade reading scores have not improved since 2007.

"That rang an alarm bell with me," she said at the event. "Even though it wasn't a decline, I saw it as losing ground."

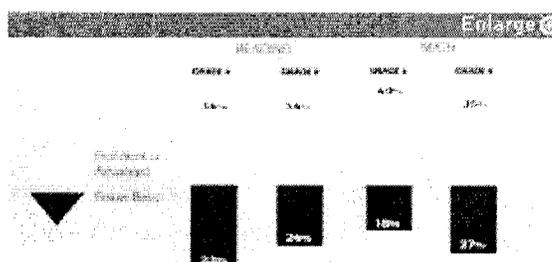
Since 1992, the average scale score in 4th grade reading has climbed just 4 points, to 221, on a 0-to-500 scale. At the 8th grade, the average score has risen 5 points.

By contrast, in math, 4th grade scores have climbed 21 points over the same period, and 8th grade scores have increased by 16 points. In fact, the long-term growth is even stronger when looking back to

◀ Back to Story

NAEP Results

Based on the latest results from the National Assessment of Educational Progress, a majority of American students still are not "proficient" in reading and math.



1990, when the math exam was first given. (The reading test began in 1992.)

SOURCE: National Center for Educational Statistics

More recently, from 2009 to 2011, the math figures at both grade levels climbed 1 point, as did 8th grade reading scores.

At the same time, Mr. Driscoll, a former education commissioner in Massachusetts, expressed concern that math improvement is not keeping pace with earlier gains.

to make gains on NAEP in both math and reading in most years."

"Over the past eight years, progress has slowed, particularly at grade 4 where it had been very rapid for more than a decade," he said. "The percentage of students 'below basic' has been reduced substantially, but it still remains far too high—particularly at 8th grade for blacks and Hispanics."

U.S. Secretary of Education Arne Duncan voiced some disappointment with the latest results.

"The modest increases in NAEP scores are reason for concern as much as optimism," he said in a statement. "It's clear that achievement is not accelerating fast enough for our nation's children to compete in the knowledge economy of the 21st century."

Stubborn Gaps

The reading and math NAEP is administered every two years to 4th and 8th graders. In math, it tests students in five content areas: number properties and operations; measurement; geometry; data analysis, statistics, and probability; and algebra. The reading assessment targets three domains: locating and recalling information students have read, integrating and interpreting that material, and critiquing and evaluating it.

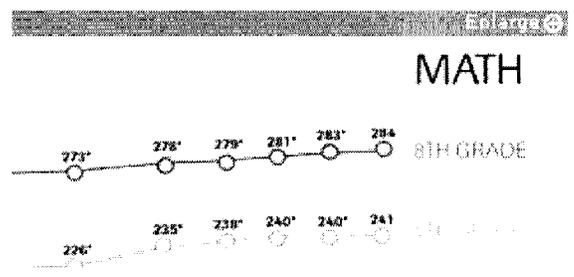
One area of long-standing concern is the large achievement gaps among racial and ethnic groups, especially when comparing African-American and Hispanic students with white students. Although all groups have made progress over the past two decades, the achievement gaps have proven difficult to close.

The 2011 reading and math results produced no statistically significant changes in the black-white achievement gap from 2009. In fact, the 2011 gap of 31 points was not deemed statistically different from 1990. That said, the black-white gap has declined somewhat in other categories since 1990, including by 7 points for 4th grade math.

The gap between Hispanic and white students declined slightly between 2009 and 2011 in two categories. In 8th grade reading, the gap was reduced by 2 points, to 22. In 8th grade math, the gap was reduced by 3 points, to 23. But the 2011 figure was about the same as the gap recorded back in 1990.

Across the Decades

Over the past two decades, growth in math achievement on NAEP has far eclipsed that in reading.



SOURCE: National Center for Education Statistics

To be sure, both Hispanic and black students have posted considerable academic gains over time, with especially strong strides in math.

In 1990, 83 percent of black 4th graders scored below basic in the subject. By 2011, that figure had plummeted to 34 percent. (The change since 2009 was not statistically significant.) Likewise, far fewer Hispanic 4th graders are performing below basic today, with the percentage declining from 67 percent in 1990 to 28 percent now.

The changes in 8th grade math for African-American and Hispanic students have also been large, though not quite as dramatic. For blacks, the below-basic figure has declined from 78 percent in 1990 to 49 percent today. For Hispanics, it has dropped from 66 percent to 39 percent. (Unlike with black 8th graders, the change between 2009 and 2011 was statistically significant for Hispanics, dropping from 43 percent to 39 percent.)

State Ups and Downs

The new NAEP results also highlight changes in state by state performance. Hawaii was the only state to see improvements in both subjects at both grade levels. Maryland's reading scores improved at both the 4th and 8th grades. In addition, the District of Columbia, New Mexico, and Rhode Island saw improved math scores at both grade levels.

On the flip side, 4th grade math achievement declined in New York, and Missouri's 8th graders fell in math. In reading, Missouri and South Dakota saw declines.

Over the past eight years, during which all states have been required to participate in the NAEP in reading and math, the largest overall gains occurred in Maryland, Massachusetts, and the District of Columbia, when looking at the increase in the percent reaching "proficient" in both subjects, Mr. Driscoll said. And yet several other states "stood virtually still," including Iowa, New York, and West Virginia.

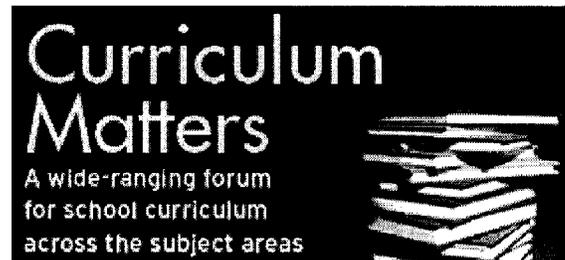
"The NAEP results for New York students are disappointing and unacceptable," John B. King Jr., that state's education commissioner, said in a statement. "New York needs change." He noted that the state recently adopted a "comprehensive reform agenda," including the new common standards, with the goal of ensuring all students are prepared for college and a career.

Nevada registered statistically significant gains of 4 points in both 8th grade reading and math compared with 2009. The state also saw 2-point gains in 4th grade reading and math, but neither was statistically significant.

Keith W. Rheault, Nevada's superintendent of public instruction, who joined last week's event announcing the NAEP results, said he was pleased to see his state's gains, especially amid tough economic times.

"[D]uring the current recession, Nevada has become number one in the nation in some pretty dismal statistics," including foreclosures, unemployment, and bankruptcy rates, he said. "Property-tax collections are down, the state budget has been cut, the teaching force has been reduced, and spending on K-12 education has been cut by several hundred million dollars since

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2008. However, in spite of all these problems, our state has continued to make gains on NAEP in both math and reading in most years."

Vol. 31, Issue 11, Page 6

POLICY ON POINT

September 2011

SREB

Maximizing Education Data Use in SREB States

For nearly a decade, the demand for better education data has reverberated across the nation, fueled in part by concerns that the information used in education decision-making is incomplete and, in some cases, inaccurate. In response, millions of federal and state dollars have been invested over the last few years to design and build state-of-the-art state education data systems, commonly referred to as Statewide Longitudinal Data Systems (SLDS).

SLDS provide states the tools to move beyond simple data collection and reporting. They give states the capacity to collect, match, connect and analyze complex data sets, including longitudinal (multiple-year) ones. That capacity provides states the means to conduct analyses over students' entire academic careers. It also gives researchers the ability to analyze the impact of policies, programs and personnel on the academic performance of public school students at any given point in their education. If K-12 and higher education SLDS are connected to a state's work force databases, the combination allows the state to map students' progress from their school years into the work force, while simultaneously analyzing the impact of education — for better or worse — on their careers.

As states finish building — and then rolling out — their SLDS, the next challenge will be leveraging the full capability of these systems to guide informed, data-driven decision-making, from the statehouse to the schoolhouse. Policy-makers can support these efforts by identifying and revising policies that might be hindering or restricting effective data use in their states.

A state/national partnership to improve data quality

To support states in their efforts to develop SLDS, in 2005 10 national organizations launched an effort — known as the Data Quality Campaign (DQC) — to improve the collection, availability and use of high-quality education data to raise student achievement. States have invested significant state funding to build their SLDS. In many cases, they have had significant federal supplements, some through a federal competitive grant program and some through federal funding provided by the American Reinvestment and Recovery Act of 2009. Thirteen SREB states have won federal grants.

The DQC began its work by helping states identify 10 critical components and policies — called “essential elements” — that states should include in their SLDS design specifications. Included are items such as a unique student identifier for every student, student test data, student transcript data, and a unique teacher identifier that can be matched back to each teacher's students.

SREB states have led the nation in implementing the 10 essential elements in their SLDS. By 2010, 10 SREB states had implemented all of the elements, three SREB states had implemented nine elements, and three had implemented eight elements. All SREB states report that they will have all 10 essential elements in place by the end of 2011. (See the table and figure.)

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This report was prepared by Jeff Gagne, director, Education Policies. It is part of the *Challenge to Lead* education goals series. For more information, call (404) 875-9211 or e-mail jeff.gagne@sreb.org.

Status of SREB States on DQC Essential Elements and Actions for Effective Data Use

10 DQC Elements Adopted in 2005	Status in 2010
A unique student identifier for every public school student	Completed by all states
Student-level enrollment data	Completed by all states
Student-level test data	Completed by all states
Data on untested students	Completed by all states except South Carolina
Statewide teacher identifier with a teacher-student match	Completed by all states except Maryland, Texas and Virginia
Student-level transcript data	Completed by all states except Maryland, Oklahoma and Virginia
Student-level ACT, SAT and AP test scores	Completed by all states
Student-level graduation and dropout data	Completed by all states
Ability to match student-level P-12 and higher education data	Complete by all states except South Carolina and West Virginia
A state data audit system that assesses data quality, validity and reliability	Completed by all states
10 DQC Actions Adopted in 2009	Status in 2010
Link data systems across the P-20/work force pipeline, so states can evaluate whether they are meeting college-readiness goals.	Completed in Florida, Georgia, Maryland, North Carolina and Texas
Identify ways to support data system maintenance and enhancements to meet changing demands.	Completed in Arkansas, Delaware, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina and Texas
Create strong data governance, which gives organizations and agencies opportunities to define roles and responsibilities.	Completed in all states except Florida, Louisiana, Mississippi, Oklahoma and South Carolina
Build state data repositories that provide safe and secure locations to house and analyze data.	Completed in all states except Louisiana and North Carolina
Create and implement systems that give stakeholders timely access to education data.	Completed in Arkansas, Florida and South Carolina
Create student progress reports for parents and teachers with information on each student's academic history.	Completed in Arkansas, Florida, Georgia, Tennessee, Texas and Virginia
Use longitudinal data to gauge performance and make decisions to support continuous improvement at all education levels.	Completed in all states except Alabama, Maryland, Mississippi, North Carolina and West Virginia
Develop a strong research agenda that spans pre-K into the work force.	Completed in Arkansas, Delaware, Georgia, Louisiana, Maryland, North Carolina, Texas and Virginia
Promote educator professional development and credentialing.	Completed in Florida
Promote communication strategies that promote an awareness and understanding of the available data.	Completed in Maryland, Tennessee, Texas and Virginia
Source: Data Quality Campaign, <i>Data for Action 2010</i> .	

Next steps: Effective use of the data

Beginning in 2009, policy-makers and education leaders began working through the DQC on ways to promote more **effective use of data** to inform decision-making in education. To this end, the states are currently in the process of implementing 10 “state actions.” Taken as a group, the actions focus on state financial support for data systems, data system governance, data security, data analysis, public access, clear communication and public understanding. No state has yet completed all of the actions. Several SREB states have made significant progress since 2009, however, and Texas leads the nation in implementing eight of the 10 actions.

State policy-makers and legislative leaders can help by finding ways to:

- ensure adequate state **funding** for maintaining and growing SLDS.
- identify and remove **barriers** to data-sharing and effective use — including data-sharing with work force and other relevant state agencies.
- ensure that all stakeholders have appropriate **access** to the data.
- **develop** reports that can:
 - guide teachers and parents to help students
 - identify students who might be at risk of not completing education goals
 - determine if all students are on track to be college- and career-ready by high school graduation, and
 - predict the likelihood of future student success, using prior academic data.

SREB individuals leading the way

As part of its campaign, DQC has recognized three individuals each year since 2006 who have been transformational state leaders in building data systems and using data effectively. Exceptional leadership in the region has propelled SREB states ahead of other states. Of the 15 leaders whom DQC has recognized nationwide, nine were recognized for the work they lead in eight SREB states. Two individuals from SREB states were recognized in 2011 for their work in 2010:

Georgia – Bob Swiggum, chief information officer at the Georgia Department of Education, developed a cost-effective way to give teachers access to their students’ prior edu-

cation data instantly, using local district data portals. Soon, Georgia will provide parents with the same kind of access to student data.

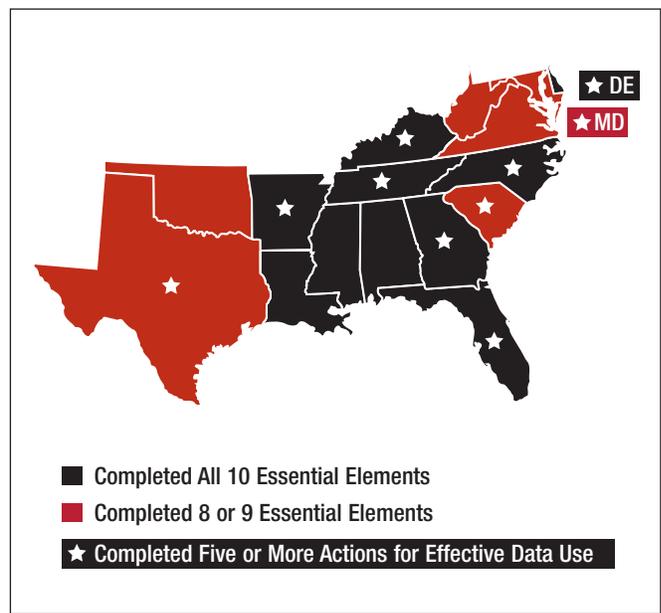
Maryland – Governor Martin O’Malley was recognized for his work with members of the state Legislature, the Maryland State Department of Education and the University System of Maryland to enact legislation that created the Maryland Longitudinal Data System Center. The center will help measure student performance, as well as college and career readiness.

Removing barriers

The federal Family Educational Rights and Privacy Act of 1974 (FERPA) transformed the way Americans thought about and used education data from the time the U.S. Congress passed it. Designed primarily to ensure the privacy of student education records, it has worked well in that regard. Yet, as states ramped up their SLDS efforts after the *No Child Left Behind Act of 2001* was passed, policy-makers and education leaders realized that FERPA had erected barriers to data-sharing among state agencies.

Restrictions on the flow of information among agencies affected policy-makers’ ability to get the information they needed to make decisions on issues involving multiple agencies, from pre-K to K-12 to postsecondary education. Effective policy-making was stymied.

State Progress on DQC Essential Elements and Actions, 2010



Source: Data Quality Campaign.

For example, while FERPA allows for the sharing of student information *up* the education pipeline, from K-12 entities to postsecondary partners, it generally does not allow sharing of information in the *reverse* direction. Consequently, postsecondary student data cannot be shared with the K-12 schools and agencies in most states, even for evaluation and analysis. This means that K-12 schools and agencies in most states cannot determine which of their former high school students were placed in remedial classes when they enrolled in postsecondary institutions.

In response, states recently have taken action. With the assistance of national and regional organizations, states lobbied the U.S. Department of Education (USDOE) in 2010 to remove the barriers created by FERPA and allow state data to be used in ways that would protect student privacy but that also would contribute to high-quality policy-making.

These efforts may bear fruit. In response to state concerns, the USDOE published proposed regulation changes to FERPA in early 2011 that would remove the barriers to data exchange among state agencies, while still providing for protection to student privacy. States are awaiting final regulations from the USDOE, expected late in 2011, after the public comment period has expired and final deliberations are complete.

But more flexibility at the federal level will count for little unless states are flexible and open in sharing data, too. State policy-makers can support these efforts in their own

states by ensuring that state policies do not hinder or restrict effective data use among agencies and education levels. Policy-makers need to help identify and remove any barriers that prohibit linking and analyzing education data across the pre-K-20 education pipeline. State barriers that could prevent the linking of student assessment data to teacher evaluations are just one example.

Looking Ahead

While the region has made great progress, SREB states still have plenty of work to complete before effective data use will be the norm across the region. The good news is that if SREB states continue leading the way, the journey toward effective data use and informed, data-driven education decision-making should grow shorter in the time ahead.

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Transforming American Education

Learning

Powered by Technology

National Education Technology Plan 2010
Executive Summary

U.S. Department of Education
Office of Educational Technology

Transforming American Education

Learning

Powered by Technology

National Education Technology Plan 2010
Executive Summary

U.S. Department of Education
Office of Educational Technology

Section 2422 of the *Elementary and Secondary Education Act* specifies that the secretary shall update and publish, in a form readily accessible to the public, a national long-range technology plan that describes how the secretary will promote: (a) higher student academic achievement through the integration of advanced technologies, including emerging technologies, into curricula and instruction; (b) increased access to technology for teaching and learning for schools with a high number or percentage of children from families with incomes below the poverty line; and (c) the use of technology to assist in the implementation of state systemic reform strategies. In addition, Section 2422 specifies that this report should also include a description of joint activities of the Department of Education and other federal departments or agencies that will promote the use of technology in education. In accordance with that requirement, the Office of Educational Technology of the Department of Education is publishing this report.

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U.S. Department of Education

Arne Duncan
Secretary

Office of Educational Technology

Karen Cator
Director

November 2010

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THE SECRETARY OF EDUCATION
WASHINGTON, DC 20202

November 2010

Dear Members of Congress:

Education is vital to America's individual and collective economic growth and prosperity, and is necessary for our democracy to work. Once the global leader in college completion rates among young people, the United States currently ranks ninth out of 36 developed nations. President Obama has articulated a bold vision for the United States to lead the world in the proportion of college graduates by 2020, thereby regaining our leadership and ensuring America's ability to compete in a global economy. To achieve this aggressive goal, we need to leverage the innovation and ingenuity this nation is known for to create programs and projects that every school can implement to succeed.

To that end, I am presenting you with the Administration's National Education Technology Plan, *Transforming American Education: Learning Powered by Technology*. The plan calls for applying the advanced technologies used in our daily personal and professional lives to our entire education system to improve student learning, accelerate and scale up the adoption of effective practices, and use data and information for continuous improvement.

The model of learning described in this plan calls for engaging and empowering personalized learning experiences for learners of all ages. The model stipulates that we focus what and how we teach to match what people need to know and how they learn. It calls for using state-of-the-art technology and Universal Design for Learning (UDL) concepts to enable, motivate, and inspire all students to achieve, regardless of background, languages, or disabilities. It calls for ensuring that our professional educators are well connected to the content and resources, data and information, and peers and experts they need to be highly effective. And it calls for leveraging the power of technology to support continuous and lifelong learning.

The National Education Technology Plan presents five goals with recommendations for states, districts, the federal government, and other stakeholders. Each goal addresses one of the five essential components of learning powered by technology: Learning, Assessment, Teaching, Infrastructure, and Productivity. The plan also calls for "grand challenge" research and development initiatives to solve crucial long-term problems that we believe should be funded and coordinated at a national level.

The plan's development was led by the Department of Education's Office of Educational Technology and involved the most rigorous and inclusive process ever undertaken for a national education technology plan. It builds on the insights and recommendations of a technical working group of leading education researchers, learning and assessment experts, and practitioners. We also engaged with and incorporated input received from hundreds of industry experts, thousands of educators, and the public. I urge you to consider this vision for transforming American education by using the best and most inclusive modern technology to power up the core functions of learning, teaching, assessment, and continuous improvement efforts, as described in this plan.

Sincerely,

/s/

Arne Duncan

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Executive Summary

Education is the key to America's economic growth and prosperity and to our ability to compete in the global economy. It is the path to good jobs and higher earning power for Americans. It is necessary for our democracy to work. It fosters the cross-border, cross-cultural collaboration required to solve the most challenging problems of our time.

Under the Obama administration, education has become an urgent priority driven by two clear goals:

- We will raise the proportion of college graduates from where it now stands (around 41 percent) so that 60 percent of our population holds a two-year or four-year degree by 2020.
- We will close the achievement gap so that all students graduate from high school ready to succeed in college and careers.

These are aggressive goals and achieving them is a sizable challenge. Add to the challenge the projections of most states and the federal government of reduced revenues for the foreseeable future, and it is clear we need cost-effective and cost-saving strategies that improve learning outcomes and graduation rates for millions of Americans.

Specifically, we must embrace innovation, prompt implementation, regular evaluation, and continuous improvement. The programs and projects that work must be brought to scale so every school has the opportunity to take advantage of their success. Our regulations, policies, actions, and investments must be strategic and coherent.

Transforming American Education

The National Education Technology Plan 2010 (NETP) calls for revolutionary transformation rather than evolutionary tinkering. It urges our education system at all levels to

- Be clear about the outcomes we seek.
- Collaborate to redesign structures and processes for effectiveness, efficiency, and flexibility.
- Continually monitor and measure our performance.
- Hold ourselves accountable for progress and results every step of the way.

The plan recognizes that technology is at the core of virtually every aspect of our daily lives and work, and we must leverage it to provide engaging and powerful learning experiences and content, as well as resources and assessments that measure student achievement in more complete, authentic, and meaningful ways. Technology-based learning and assessment systems will be pivotal in improving student learning and generating data that can be used to continuously improve the education system at all levels. Technology will help us execute collaborative teaching strategies combined with professional learning that better prepare and enhance educators'

competencies and expertise over the course of their careers. To shorten our learning curve, we should look to other kinds of enterprises, such as business and entertainment, that have used technology to improve outcomes while increasing productivity.

We also should implement a new approach to research and development (R&D) in education that focuses on scaling innovative best practices in the use of technology in teaching and learning, transferring existing and emerging technology innovations into education, sustaining the R&D for education work that is being done by such organizations as the National Science Foundation, and creating a new organization to address major R&D challenges at the intersection of learning sciences, technology, and education.

A Model of Learning Powered by Technology

The NETP presents a model of learning powered by technology, with goals and recommendations in five essential areas: learning, assessment, teaching, infrastructure, and productivity. The plan also identifies far-reaching “grand challenge” R&D problems that should be funded and coordinated at a national level.

The challenging and rapidly changing demands of our global economy tell us what people need to know and who needs to learn. Advances in learning sciences show us how people learn. Technology makes it possible for us to act on this knowledge and understanding.

Learning: Engage and Empower

The model of learning described in this plan calls for engaging and empowering learning experiences for all learners. The model asks that we focus what and how we teach to match what people need to know, how they learn, where and when they will learn, and who needs to learn. It brings state-of-the-art technology into learning to enable, motivate, and inspire all students, regardless of background, languages, or disabilities, to achieve. It leverages the power of technology to provide personalized learning and to enable continuous and lifelong learning.

Many students’ lives today are filled with technology that gives them mobile access to information and resources 24/7, enables them to create multimedia content and share it with the world, and allows them to participate in online social networks where people from all over the world share ideas, collaborate, and learn new things. Outside school, students are free to pursue their passions in their own way and at their own pace. The opportunities are limitless, borderless, and instantaneous.

The challenge for our education system is to leverage the learning sciences and modern technology to create engaging, relevant, and personalized learning experiences for all learners that mirror students’ daily lives and the reality of their futures. In contrast to traditional classroom instruction, this requires that we put students at the center and empower them to take control of their own learning by providing flexibility on several dimensions.

A core set of standards-based concepts and competencies should form the basis of what all students should learn. Beyond that, students and educators should have options for engaging in learning: large groups, small groups, and work tailored to the individual goals, needs, interests, and prior experience of each learner. Technology should be leveraged to provide access to more learning resources than are available in classrooms and connections to a wider set of “educators,” including teachers, parents, experts, and mentors outside the classroom. It also should be used to enable 24/7 and lifelong learning.

What and How People Need to Learn

Whether the domain is English language arts, mathematics, sciences, social studies, history, art, or music, 21st-century competencies and such expertise as critical thinking, complex problem solving, collaboration, and multimedia communication should be woven into all content areas. These competencies are necessary to become expert learners, which we all must be if we are to adapt to our rapidly changing world over the course of our lives. That involves developing deep understanding within specific content areas and making the connections among them.

How we need to learn includes using the technology that professionals in various disciplines use. Professionals routinely use the Web and tools, such as wikis, blogs, and digital content for the research, collaboration, and communication demanded in their jobs. They gather data and analyze the data using inquiry and visualization tools. They use graphical and 3D modeling tools for design. For students, using these real-world tools creates learning opportunities that allow them to grapple with real-world problems—opportunities that prepare them to be more productive members of a globally competitive workforce.

Assessment: Measure What Matters

The model of learning requires new and better ways to measure what matters, diagnose strengths and weaknesses in the course of learning when there is still time to improve student performance, and involve multiple stakeholders in the process of designing, conducting, and using assessment. In all these activities, technology-based assessments can provide data to drive decisions on the basis of what is best for each and every student and that, in aggregate, will lead to continuous improvement across our entire education system.

The nation's governors and state education chiefs have begun to develop standards and assessments that measure 21st-century competencies and expertise in all content areas. Technology-based assessments that combine cognitive research and theory about how students think with multimedia, interactivity, and connectivity make it possible to directly assess these types of skills. This can be done within the context of relevant societal issues and problems that people care about in everyday life.

When combined with learning systems, technology-based assessments can be used formatively to diagnose and modify the conditions of learning and instructional practices while at the same time determining what students have learned for grading and accountability purposes. Both uses are important, but the former can improve student learning in the moment (Black and William 1998). Furthermore, systems can be designed to capture students' inputs and collect evidence of their knowledge and problem-solving abilities as they work. Over time, the system "learns" more about students' abilities and can provide increasingly appropriate support.

Using Data to Drive Continuous Improvement

With assessments in place that address the full range of expertise and competencies reflected in standards, student-learning data can be collected and used to continually improve learning outcomes and productivity. For example, such data could be used to create a system of interconnected feedback for students, educators, parents, school leaders, and district administrators.

For this to work, relevant data must be made available to the right people at the right time and in the right form. Educators and leaders at all levels of our education system also must be provided with support—tools and training—that can help them manage the assessment process, analyze relevant data, and take appropriate action.

Teaching: Prepare and Connect

Just as leveraging technology can help us improve learning and assessment, the model of learning calls for using technology to help build the capacity of educators by enabling a shift to a model of connected teaching. In such a teaching model, teams of connected educators replace solo practitioners, classrooms are fully connected to provide educators with 24/7 access to data and analytic tools, and educators have access to resources that help them act on the insights the data provide.

Professional educators are a critical component of transforming our education systems, and therefore strengthening and elevating the teaching profession is as important as effective teaching and accountability. All are necessary if we are to attract and retain the most effective educators and achieve the learning outcomes we seek. Just as leveraging technology can help us improve learning and assessment, it also can help us shift to a model of connected teaching.

In a connected teaching model, classroom educators are fully connected to learning data and tools for using the data; to content, resources, and systems that empower them to create, manage, and assess engaging and relevant learning experiences; and directly to their students in support of learning both in and out of school. The same connections give them access to resources and expertise that improve their own instructional practices and guide them in becoming facilitators and collaborators in their students' increasingly self-directed learning.

In connected teaching, teaching is a team activity. Individual educators build online learning communities consisting of their students and their students' peers; fellow educators in their schools, libraries, and after-school programs; professional experts in various disciplines around the world; members of community organizations that serve students in the hours they are not in school; and parents who desire greater participation in their children's education.

Episodic and ineffective professional development is replaced by professional learning that is collaborative, coherent, and continuous and that blends more effective in-person courses and workshops with the expanded opportunities, immediacy, and convenience enabled by online environments full of resources and opportunities for collaboration. For their part, the colleges of education and other institutions that prepare teachers play an ongoing role in the professional growth of their graduates throughout the entire course of their careers.

Connected teaching enables our education system to provide access to effective teaching and learning resources where they are not otherwise available and more options for all learners. This is accomplished by augmenting the expertise and competencies of specialized and exceptional educators with online and blended (online and offline) learning systems, on-demand courses, and other self-directed learning opportunities.

21st-Century Resources for Professional Educators

The technology that enables connected teaching is available now, but not all the conditions necessary to leverage it are. Many of our existing educators do not have the same understanding of and ease with using technology that is part of the daily lives of professionals in other sectors. The same can be said of many of the education leaders and policymakers in schools, districts, and states and of the higher education institutions that prepare new educators for the field.

This gap in technology understanding influences program and curriculum development, funding and purchasing decisions about educational and information technology in schools, and preservice and in-service professional learning. This gap prevents technology from being used in ways that would improve instructional practices and learning outcomes.

Still, we must introduce connected teaching into our education system rapidly, and therefore we need innovation in the organizations that support educators in their profession—schools and districts, colleges of education, professional learning providers, and professional organizations.

Infrastructure: Access and Enable

An essential component of the learning model is a comprehensive infrastructure for learning that provides every student, educator, and level of our education system with the resources they need when and where they are needed. The underlying principle is that infrastructure includes people, processes, learning resources, policies, and sustainable models for continuous improvement in addition to broadband connectivity, servers, software, management systems, and administration tools. Building this infrastructure is a far-reaching project that will demand concerted and coordinated effort.

Although we have adopted technology in many aspects of education today, a comprehensive infrastructure for learning is necessary to move us beyond the traditional model of educators and students in classrooms to a learning model that brings together teaching teams and students in classrooms, labs, libraries, museums, workplaces, and homes—anywhere in the world where people have access devices and an adequate Internet connection.

Over the past 40 years, we have seen unprecedented advances in computing and communications that have led to powerful technology resources and tools for learning. Today, low-cost Internet access devices, easy-to-use digital authoring tools, and the Web facilitate access to information and multimedia learning content, communication, and collaboration. They provide the ability to participate in online learning communities that cross disciplines, organizations, international boundaries, and cultures.

Many of these technology resources and tools already are being used within our public education system. We are now, however, at an inflection point for a much bolder transformation of education powered by technology. This revolutionary opportunity for change is driven by the continuing push of emerging technology and the pull of the critical national need to radically improve our education system.

Always-on Learning

An infrastructure for learning is always on, available to students, educators, and administrators regardless of their location or the time of day. It supports not just access to information, but access to people and participation in online learning communities. It offers a platform on which developers can build and tailor applications.

An infrastructure for learning unleashes new ways of capturing and sharing knowledge based on multimedia that integrate text, still and moving images, audio, and applications that run on a variety of devices. It enables seamless integration of in- and out-of-school learning. It frees learning from a rigid information transfer model (from book or educator to students) and enables a much more motivating intertwinement of learning about, learning to do, and learning to be.

On a more operational level, an infrastructure for learning brings together and enables access to data from multiple sources while ensuring appropriate levels of security and privacy. The infrastructure integrates computer hardware, data and networks, information resources, interoperable software, middleware services and tools, and devices, and connects and supports interdisciplinary teams of professionals responsible for its development, maintenance, and management and its use in transformative approaches to teaching and learning.

Productivity: Redesign and Transform

To achieve our goal of transforming American education, we must rethink basic assumptions and redesign our education system. We must apply technology to implement personalized learning and ensure that students are making appropriate progress through our P–16 system so they graduate. These and other initiatives require investment, but tight economic times and basic fiscal responsibility demand that we get more out of each dollar we spend. We must leverage technology to plan, manage, monitor, and report spending to provide decision-makers with a reliable, accurate, and complete view of the financial performance of our education system at all levels. Such visibility is essential to meeting our goals for educational attainment within the budgets we can afford.

Improving productivity is a daily focus of most American organizations in all sectors—both for-profit and nonprofit—and especially in tight economic times. Education has not, however, incorporated many of the practices other sectors regularly use to improve productivity and manage costs, nor has it leveraged technology to enable or enhance them. We can learn much from the experience in other sectors.

What education can learn from the experience of business is that we need to make the fundamental structural changes that technology enables if we are to see dramatic improvements in productivity. As we do so, we should recognize that although the fundamental purpose of our public education system is the same, the roles and processes of schools, educators, and the system itself should change to reflect the times we live in and our goals as a world leader. Such rethinking applies to learning, assessment, and teaching processes and to the infrastructure and operational and financial sides of running schools and school systems.

Rethinking Basic Assumptions

One of the most basic assumptions in our education system is time-based or “seat-time” measures of educational attainment. These measures were created in the late 1800s and early 1900s to smooth transitions from K–12 into higher education by translating high school work to college admissions offices (Shedd 2003) and made their way into higher education when institutions began moving away from standardized curricula.

Another basic assumption is the way we organize students into age-determined groups, structure separate academic disciplines, organize learning into classes of roughly equal size with all the students in a particular class receiving the same content at the same pace, and keep these groups in place all year.

The last decade has seen the emergence of some radically redesigned schools, demonstrating the range of possibilities for structuring education. These include schools that organize around competence rather than seat time and others that enable more flexible scheduling that fits students’ individual needs rather than traditional academic periods and lockstep curriculum pacing. In addition, schools are beginning to incorporate online learning, which gives us the opportunity to extend the learning day, week, or year.

The United States has a long way to go if we are to see every student complete at least a year of higher education or postsecondary career training. There is no way to achieve this target unless we can dramatically reduce the number of students who leave high school without getting a diploma and/or who are unprepared for postsecondary education.

A complex set of personal and academic factors underlie students’ decision to leave school or to disengage from learning, but support should start as early as possible, before children enter school, and should become intensified for those students who need it as they

move through school. Practices supported with technology can help address the problem, including learning dashboards that keep students on track with their course requirements and earning credits for courses taken online.

Redesigning education in America for improved productivity is a complex challenge that will require all 50 states, the thousands of districts and schools across the country, the federal government, and other education stakeholders in the public and private sector to come together to design and implement innovative solutions. It is a challenge for educators—leaders, teachers, and policymakers committed to learning—as well as technologists, and ideally they will come together to lead the effort.

A Rigorous and Inclusive Process

This plan, led by the Department of Education’s Office of Educational Technology, was developed using a rigorous and inclusive process built on the report of a technical working group of leading education researchers and practitioners.

In keeping with the White House’s Open Government Directive, the Department invited extensive public participation in the development of the plan. Broad outreach efforts and state-of-the-art communications and collaboration technology enabled tens of thousands of individuals to learn about and contribute to the development of the plan over its 9-month development period.

The Time To Act Is Now

The NETP accepts that we do not have the luxury of time: We must act now and commit to fine-tuning and midcourse corrections as we go. Success will require leadership, collaboration, and investment at all levels of our education system—states, districts, schools, and the federal government—as well as partnerships with higher education institutions, private enterprises, and not-for-profit entities.

In the United States, education is primarily a state and local responsibility. State and local public education institutions must ensure equitable access to learning experiences for all students and especially students in underserved populations—low-income and minority students, students with disabilities, English language learners, students in rural and frontier schools, and others. States and districts need to build capacity for transformation. The Department of Education has a role in identifying effective strategies and implementation practices; encouraging, promoting, and actively supporting innovation in states and districts; and nurturing collaborations that help states and districts leverage resources so the best ideas can be scaled up.

Postsecondary education institutions—community colleges and four-year colleges and universities—will need to partner more closely with K–12 schools to remove barriers to postsecondary education and put plans of their own in place to decrease dropout rates. Clearly, postsecondary institutions would be key players in the national R&D efforts recommended in this plan.

Education has long relied on the contributions of organizations in both the private and not-for-profit sectors, and this will not change.

As we enter the second decade of the 21st century, there has never been a more pressing need to transform American education or a better time to act. The NETP is a 5-year action plan that responds to an urgent national priority and a growing understanding of what the United States needs to do to remain competitive in a global economy.

Goals and Recommendations

To transform education in America, we must turn ideas into action. The NETP presents five goals that address the key components of this plan—learning, assessment, teaching, infrastructure, and productivity—along with recommendations for states, districts, the federal government, and other stakeholders in our education system for achieving these goals.

1.0 Learning: Engage and Empower

All learners will have engaging and empowering learning experiences both in and out of school that prepare them to be active, creative, knowledgeable, and ethical participants in our globally networked society.

To meet this goal, we recommend the following:

1.1 States should continue to revise, create, and implement standards and learning objectives using technology for all content areas that reflect 21st-century expertise and the power of technology to improve learning.

Our education system relies on core sets of standards-based concepts and competencies that form the basis of what all students should know and should be able to do. Whether the domain is English language arts, mathematics, sciences, social studies, history, art, or music, states should continue to consider the integration of 21st-century competencies and expertise, such as critical thinking, complex problem solving, collaboration, multimedia communication, and technological competencies demonstrated by professionals in various disciplines.

1.2 States, districts, and others should develop and implement learning resources that use technology to embody design principles from the learning sciences.

Advances in learning sciences, including cognitive science, neuroscience, education, and social sciences, give us greater understanding of three connected types of human learning—factual knowledge, procedural knowledge, and motivational engagement. Technology has increased our ability to both study and enhance all three types. Today's learning environments should reflect what we have learned about how people learn and take advantage of technology to optimize learning.

1.3 States, districts, and others should develop and implement learning resources that exploit the flexibility and power of technology to reach all learners anytime and anywhere.

The always-on nature of the Internet and mobile access devices provides our education system with the opportunity to create learning experiences that are available anytime and anywhere. When combined with design principles for personalized learning and Universal Design for Learning, these experiences also can be accessed by learners who have been marginalized in many educational settings: students from low-income communities and minorities, English language learners, students with disabilities, students who are gifted and talented, students from diverse cultures and linguistic backgrounds, and students in rural areas.

1.4 Use advances in learning sciences and technology to enhance STEM (science, technology, engineering, and mathematics) learning and develop, adopt, and evaluate new methodologies with the potential to inspire and enable all learners to excel in STEM.

New technologies for representing, manipulating, and communicating data, information, and ideas have changed professional practices in STEM fields and what students need to learn to be prepared for STEM professions. Technology should be used to support student interaction with STEM content in ways that promote deeper understanding of complex ideas, engage students in solving complex problems, and create new opportunities for STEM learning throughout our education system.

2.0 Assessment: Measure What Matters

Our education system at all levels will leverage the power of technology to measure what matters and use assessment data for continuous improvement.

To meet this goal, we recommend the following actions:

2.1 States, districts, and others should design, develop, and implement assessments that give students, educators, and other stakeholders timely and actionable feedback about student learning to improve achievement and instructional practices.

Learning science and technology combined with assessment theory can provide a foundation for new and better ways to assess students in the course of learning, which is the ideal time to improve performance. This will require involving experts from all three disciplines in the process of designing, developing, and using new technology-based assessments that can increase the quality and quantity of feedback to learners.

2.2 Build the capacity of educators, education institutions, and developers to use technology to improve assessment materials and processes for both formative and summative uses.

Technology can support measuring performances that cannot be assessed with conventional testing formats, providing our education system with opportunities to design, develop, and validate new and more effective assessment materials. Building this capacity can be accelerated through knowledge exchange, collaboration, and better alignment between educators (practitioners) and experts.

2.3 Conduct research and development that explores how embedded assessment technologies, such as simulations, collaboration environments, virtual worlds, games, and cognitive tutors, can be used to engage and motivate learners while assessing complex skills.

Interactive technologies, especially games, provide immediate performance feedback so that players always know how they are doing. As a result, they are highly engaging to students and have the potential to motivate students to learn. They also enable educators to assess important competencies and aspects of thinking in contexts and through activities that students care about in everyday life. Because interactive technologies hold this promise, assessment and interactive technology experts should collaborate on research to determine ways to use them effectively for assessment.

2.4 Conduct research and development that explores how Universal Design for Learning can enable the best accommodations for all students to ensure we are assessing what we intend to measure rather than extraneous abilities a student needs to respond to the assessment task.

To be valid, an assessment must measure those qualities it is intended to measure and scores should not be influenced by extraneous factors. An assessment of science, for example, should measure understanding of science concepts and their application, not the ability to see print, to respond to items using a mouse, or to use word processing skills. Assessment and technology experts should collaborate to create assessment design tools and processes that make it possible to develop assessment systems with appropriate features (not just accommodations) so that assessments capture examinees' strengths in terms of the qualities that the assessment is intended to measure.

2.5 Revise practices, policies, and regulations to ensure privacy and information protection while enabling a model of assessment that includes ongoing gathering and sharing of data on student learning for continuous improvement.

Every parent of a student under 18 and every student 18 or over should have the right to access the student's own assessment data in the form of an electronic learning record that the student can take with them throughout his or her educational career. At the same time, appropriate safeguards, including stripping records of identifiable information and

aggregating data across students, classrooms, and schools, should be used to make it possible to supply education data derived from student records to other legitimate users without compromising student privacy.

3.0 Teaching: Prepare and Connect

Professional educators will be supported individually and in teams by technology that connects them to data, content, resources, expertise, and learning experiences that enable and inspire more effective teaching for all learners.

To meet this goal, we recommend the following actions:

3.1 Expand opportunities for educators to have access to technology-based content, resources, and tools where and when they need them.

Today's technology enables educators to tap into resources and orchestrate expertise across a school district or university, a state, the nation, and even around the world. Educators can discuss solutions to problems and exchange information about best practices in minutes, not weeks or months. Today's educators should have access to technology-based resources that inspire them to provide more engaging and effective learning opportunities for each and every student.

3.2 Leverage social networking technologies and platforms to create communities of practice that provide career-long personal learning opportunities for educators within and across schools, preservice preparation and in-service education institutions, and professional organizations.

Social networks can be used to provide educators with career-long personal learning tools and resources that make professional learning timely and relevant as well as an ongoing activity that continually improves practice and evolves their skills over time. Online communities should enable educators to take online courses, tap into experts and best practices for just-in-time problem solving, and provide platforms and tools for educators to design and develop resources with and for their colleagues.

3.3 Use technology to provide all learners with online access to effective teaching and better learning opportunities and options especially in places where they are not otherwise available.

Many education institutions, particularly those serving the most vulnerable students and those in rural areas, lack educators with competencies in reaching students with special needs and educators with content knowledge and expertise in specialized areas, including STEM. Even in areas where effective teaching is available, students often lack options for high-quality courses in particular disciplines or opportunities for learning that prepare them for the modern world. Online learning options should be provided to enable leveraging the best teaching and make high-quality course options available to all learners.

3.4 Provide preservice and in-service educators with professional learning experiences powered by technology to increase their digital literacy and enable them to create compelling assignments for students that improve learning, assessment, and instructional practices.

Just as technology helps us engage and motivate students to learn, technology should be used in the preparation and ongoing learning of educators to engage and motivate them in what and how they teach. This will require synthesizing core principles and adopting best practices for the use of technology in preparing educators. Technology also should be an integral component of teaching methods courses and field experiences rather than treated as a discrete skill distinct from pedagogical application.

3.5 Develop a teaching force skilled in online instruction.

As online learning becomes an increasingly important part of our education system, we need to provide online and blended learning experiences that are more participatory and personalized and that embody best practices for engaging all students. This creates both the need and opportunity for educators who are skilled in instructional design and knowledgeable about emerging technologies. Crucial to filling this need while ensuring effective teaching are appropriate standards for online courses and teaching and a new way of approaching online teacher certification.

4.0 Infrastructure: Access and Enable

All students and educators will have access to a comprehensive infrastructure for learning when and where they need it.

To meet this goal, we recommend the following actions:

4.1 Ensure students and educators have broadband access to the Internet and adequate wireless connectivity both in and out of school.

Students and educators need adequate broadband bandwidth for accessing the Internet and technology-based learning resources. “Adequate” should be defined as the ability to use the Internet in school, on the surrounding campus, throughout the community, and at home. It should also include simultaneous use of high-bandwidth resources, such as multimedia, communication and collaboration environments, and communities. Crucial to providing such access are the broadband initiatives being individually and jointly managed by various federal agencies.

4.2 Ensure that every student and educator has at least one Internet access device and appropriate software and resources for research, communication, multimedia content creation, and collaboration for use in and out of school.

Only with 24/7 access to the Internet via devices and technology-based software and resources can we achieve the kind of engagement, student-centered learning, and assessments that can improve learning in the ways this plan proposes. The form of these devices, software, and resources may or may not be standardized and will evolve over time. In addition, these devices may be owned by the student or family, owned by the school, or some combination of the two. The use of devices owned by students will require advances in network filtering and improved support systems.

4.3 Support the development and use of open educational resources to promote innovative and creative opportunities for all learners and accelerate the development and adoption of new open technology-based learning tools and courses.

The value of open educational resources is now recognized around the world, leading to the availability of a vast array of learning, teaching, and research resources that learners of any age can use across all content areas. Realizing this value will require new policies concerning the evaluation and selection of instructional materials so that digital resources are considered and processes are established for keeping educational resource content up to date, appropriate, and tagged according to identified content interoperability standards.

4.4 Build state and local education agency capacity for evolving an infrastructure for learning.

Building an infrastructure for learning is a far-reaching project that will demand concerted and coordinated effort. The effort should start with implementing the next generation of computing system architectures and include transitioning computer systems, software, and services from in-house datacenters to professionally managed data centers in the cloud for greater efficiency and flexibility. This will require leveraging and scaling up the human talent

to build such an infrastructure, which should ultimately save money and enable education IT professionals to focus more on maintaining the local infrastructure and supporting teachers, students, and administrators.

4.5 Develop and use interoperability standards for content and student-learning data to enable collecting and sharing resources and collecting, sharing, and analyzing data to improve decision making at all levels of our education system.

Fragmented content and resources and student-learning data siloed in different proprietary platforms and systems, along with a lack of common standards for collecting and sharing data, are formidable barriers to leveraging resources for teaching and learning. These barriers exist because we lack common content interoperability standards and tools to enable use of such standards. The lack of common standards affects the quality of tools because developers limit their R&D investments into narrow markets and are not able to leverage overall market advancements in research and development. Interoperability standards are essential to resolving these issues.

4.6 Develop and use interoperability standards for financial data to enable data-driven decision making, productivity advances, and continuous improvement at all levels of our education system.

Just as content, resources, and student learning data are fragmented in disconnected technology systems and throughout our education system, the same is true for financial data. Therefore, we also need financial data interoperability standards and tools that enable the use of these standards.

5.0 Productivity: Redesign and Transform

Our education system at all levels will redesign processes and structures to take advantage of the power of technology to improve learning outcomes while making more efficient use of time, money, and staff.

To meet this goal, we recommend the following actions:

5.1 Develop and adopt a common definition of productivity in education and more relevant and meaningful measures of outcomes, along with improved policies and technologies for managing costs, including those for procurement.

Education has not incorporated many of the practices other sectors regularly use to measure outcomes, manage costs, and improve productivity, a number of which are enabled or enhanced by technology. As other sectors have learned, we are unlikely to improve outcomes and productivity until we define and start measuring them. This starts with identifying what we seek to measure. It also requires identifying costs associated with components of our education system and with individual resources and activities so that the ratio of outcomes to costs can be tracked over time.

5.2 Rethink basic assumptions in our education system that inhibit leveraging technology to improve learning, starting with our current practice of organizing student and educator learning around seat time instead of the demonstration of competencies.

To realize the full potential of technology for improving performance and increasing productivity, we must remove the process and structural barriers to broad adoption. The education system must work to identify and rethink basic assumptions of the education system. Some of these include measurement of educational attainment through seat time, organization of students into age-determined groups, the structure of separate academic disciplines, the organization of learning into classes of roughly equal size, and the use of time blocks.

5.3 Develop useful metrics for the educational use of technology in states and districts.

Current data on the use of educational and information technology in our system consist of records of purchases and numbers of computers and Internet connections. Very little information on how technology is actually used to support teaching, learning, and assessment is collected and communicated systematically. Only by shifting our focus to collecting data on how and when technology is used will we be able to determine the difference it makes and use that knowledge to improve outcomes and the productivity of our education system.

5.4 Design, implement, and evaluate technology-powered programs and interventions to ensure that students progress seamlessly through our P–16 education system and emerge prepared for college and careers.

The United States has a long way to go if we are to see every student complete at least a year of higher education or postsecondary career training. Achieving this target will require dramatically reducing the number of students who leave high school without getting a diploma and/or who are unprepared for postsecondary education. A complex set of personal and academic factors underlie students' decisions to leave school or to disengage from learning, and no one strategy will prevent every separation from the education system. Collaboration between P–12 and higher education institutions and practices supported with technology are crucial to addressing the problem.

Getting Started Now

The Department of Education has a role in identifying effective strategies and implementation practices; encouraging, promoting, and actively supporting innovation and best practices in states and districts; and nurturing collaborations that help states and districts leverage resources so the best ideas can be scaled up. To help ensure the successful implementation of this plan, the Department of Education can take action around the following priorities:

Convening education stakeholders, in person and online, to share content, insights, and expertise and to collaborate on key elements of this plan. Ideas and best practices that emerge from these convenings will be shared throughout our education system.

The Department of Education can

Convene learning science researchers, developers of educational technology, curriculum developers, public and private sector organizations, and Universal Design for Learning experts to share information and research for developing the next generation of technology-based learning platforms, resources, courses, and tools.

Facilitate collaboration between states and private and public sector organizations to design, develop, validate, and scale up new technology-based assessment resources for both formative and summative uses. These efforts should include exploring the use of embedded assessment technologies, such as simulations, collaboration environments, virtual worlds, and games in new assessment resources.

Convene P–12 and higher education institutions, states, and districts to collaborate on strategies for creating persistent student electronic learning records and using student data for continuous improvement.

Facilitate collaboration between states, districts, universities, other research and development organizations, other agencies, and the commercial sector to develop and leverage open educational resources. Designs for use and reuse and new business models will be included.

Convene states, teacher accreditation organizations, colleges of education, and organizations representing online learning providers to promote states' consideration of voluntary standards for online courses and for online teaching. This activity should include the promotion of reciprocity agreements between states for certifying online teachers.

Convene states and education leadership organizations to identify and rethink basic assumptions in our education system, starting with but not limited to the measurement of educational attainment through seat time. Other assumptions that should be reexamined are the organization of students into static age-determined groups and the organization of learning into classes of roughly equal size, as well as the structure of separate academic disciplines. The use of online learning and combining offline and online learning to provide options for flexibility, additional learning time, and more effective use of the time allotted should be explored.

Convene states, districts, and education and technology experts from the academic, private, and public sectors to define useful metrics for the use of technology in support of teaching and learning and improved operations that states and districts can use to guide technology purchases.

Promote collaboration between two- and four-year postsecondary education institutions, P-12 programs, and educational technology developers in the private and public sectors to design programs and resources to engage and/or reengage students and motivate them to graduate from high school ready for postsecondary education. Facilitate collaboration on alternative programs that take advantage of technology to reconnect with students and help them complete learning programs.

Supporting efforts to ensure that all students and educators have 24/7 access to the Internet via devices, including mobile devices, and that states, districts, and schools adopt technologies and policies to enable leveraging the technology that students already have.

The Department of Education can

Endorse and actively support the broadband initiatives of the *American Recovery and Reinvestment Act of 2009*, which are intended to accelerate deployment of Internet services in unserved, underserved, and rural areas and to strategic anchor institutions, such as schools, that are likely to provide significant public benefits. These initiatives are the Broadband Technology Opportunities Program of the Department of Commerce's National Telecommunications and Information Administration, the Rural Development Broadband Program of the Department of Agriculture, and the interagency National Broadband Plan developed by the Federal Communications Commission.

Work with districts, states, and the private sector to articulate effective technology support models for 24/7 access including using school- and student-owned devices. New support models for this type of access will require improved security systems, more intelligent filtering systems that allow blocking and enabling access within this type of infrastructure, and personnel and/or systems capable of providing around-the-clock support for school-, student-, and educator-owned devices used for learning.

Participating in efforts to ensure that transitioning from predominantly print-based classrooms to digital learning environments promotes organized, accessible, easy-to-distribute and easy-to-use content and learning resources.

The Department of Education can

Support the development of an open architecture mapping and navigation platform that will enable the visual depiction of learning progressions across all content areas and reflect 21st-century expertise. Accessible online, these learning progressions can be used to reenvision content, resources, assessments, curricula, and professional learning for teachers and encourage the sharing of best practices and new approaches to improve teaching and learning. This platform would encourage a variety of mashups and spur innovation.

Initiate an interagency effort to create, publish, and maintain open standards for content, student learning, and financial data interoperability. State and district requests for proposals for assessment and data systems should require appropriate use of these standards.

Create a learning registry, an open-standard registry of all content developed by various agencies throughout the federal government so that states, districts, and schools can access and leverage it and combine it with their own repositories of content.

Expand the availability of digital-learning content, resources, courses, and tools and ensure their continuous improvement by funding the research and development of open educational resources. Facilitate states working together to pool resources for identifying and evaluating or issuing requirements for developing open educational resources.

Support research and evaluation efforts focused on the effectiveness of online and blended learning environments at all levels.

Encourage the use of technology and online learning courses and resources in federally funded programs that expand learning opportunities for underserved populations and others who need it most.

Encourage states, districts, P–12 programs, and postsecondary education institutions to experiment with such resources as online learning, online tutoring and mentoring, games, cognitive tutors, immersive environments, and participatory communities and social networks both within and across education institutions to give students guidance and information about their own learning progress and strategies for seamless completion of a comprehensive P–16 education.

Funding online communities of practice to ensure that teachers are connected to data, resources, experts, and peers to prepare and enable connected teaching.

The Department of Education can

Fund a contract for design research on online communities of practice and apply the design to a series of at least six communities of practice in order to leverage the use of educational technology and social networking to improve teaching, assessment, learning, and infrastructure in schools. The communities of practice will be designed to ensure teachers and other education professionals are highly connected to data, resources, content, experts, peers, and just-in-time expertise on a variety of topics.

Leverage the design work on online communities of practice to inform contracts and grants for providing technical assistance throughout the Department of Education.

Ensuring a sustained focus on R&D for education, including scaling up and sustaining innovations, technology transfer, and grand challenge problems.

The Department of Education can

Implement an approach to R&D for education that focuses on five areas:

- Transferring existing and emerging technology innovations from sectors such as business, consumer, and entertainment into education.
- Transferring appropriate developments from the Department of Defense Advanced Research Projects Administration to the public education sector.
- Supporting and sustaining the education R&D that is currently happening throughout the National Science Foundation by designing a commercialization strategy.

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- Creating a new organization (the National Center for Research in Advanced Information and Digital Technologies) with the mission of serving the public good through R&D at the intersection of learning sciences, technology, and education.
 - Providing competitive grants for scaling up innovative and evidence-based practices through the Department of Education's Investing in Innovation Fund.

Encouraging states and districts to move to more integrated use of technology in teaching and learning.

The Department of Education can

Encourage states to assign responsibility for educational technology to senior-level individuals who will provide leadership in connecting the planning for educational and information technology to the core functions of curriculum and instruction, assessment, and professional learning and in ensuring that the most efficient and effective purchases are made. These individuals will be invited to participate on a cross-functional team organized by the Department of Education to share insights and best practices and collaborate on technology for teaching and learning.

Encourage every federal grant program and expenditure to consider how technology can be a multiplier for support and scale in education.

Leading a national initiative to identify strategies for increasing productivity in education and work with states, districts, and schools to build their capacity for implementing them.

The Department of Education can

Start a national initiative and develop an ongoing research agenda dedicated to improving productivity in the education sector. The initiative will focus on defining productivity in education and establishing new and more useful metrics and methods for measuring it. The initiative will promote continuous improvement and data-driven decision making, leveraging technology to plan, manage, monitor, and report spending so that education decision-makers can be provided with a reliable, accurate, and complete view of the financial performance of our education system at all levels.

Encourage states to adopt common cost accounting standards to allow benchmarking and analysis of costs and provide a platform for sharing strategies for cost saving and productivity improvement and highlight policies at the federal, state, and local level that might inhibit progress, for example, in procurement.

Develop new and better ways of assessing the efficacy of technology in teaching and learning and in the financial operations of education institutions.

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EDUCATION WEEK

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For States, Collaboration Key to NCLB Waivers

By Michele McNeil

States that want newly offered relief from certain provisions of the No Child Left Behind Act are scrambling to satisfy an easily overlooked requirement that they "meaningfully" engage with teachers, unions, parents, and community organizations, and even modify their waiver proposals based on that input.

Federal education officials warn that failure to meet the collaboration requirement could doom even a stellar waiver application that includes a rock-solid accountability system and an aggressive plan for intervening in failing schools.

It's an especially daunting task for the 16 states that have indicated they will apply by the Nov. 14 deadline for the first round of **waivers being offered** by the U.S. Department of Education under the current version of the Elementary and Secondary Education Act.

"This is a heck of a time squeeze. All of the states know their plans can't be done in isolation, that in the long run, that will be a negative factor," said Gene Wilhoit, the executive director of the Council of Chief State School Officers. He said the required collaboration was a factor in driving most states that want a waiver—or about 25—to apply in February. In fact, he said, some of the states that told the department they would apply in November may delay their applications for a while.

In September, after Congress had made little progress in reauthorizing the ESEA, the Obama administration announced a format for granting waivers to states from significant parts of the existing law. To gain a waiver, states will have to adopt college- and career-ready standards and tie state tests to them, adopt a differentiated accountability system that focuses on 15 percent of the most-troubled schools, and craft guidelines for teacher- and principal-evaluation systems that will be based partly on student growth and be used for personnel decisions. ("**Obama Outlines NCLB Flexibility**," Sept. 28, 2011.)

In return, states will no longer have to face the 2014 deadline for bringing all students to proficiency in math and reading, their schools will no longer face NCLB-mandated sanctions, and district officials will have more freedom to move around Title I money for disadvantaged students.

All of that will have to be done under a plan crafted as part of a collaborative process, but stakeholders do not need to agree on all elements of the waiver proposal.

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"I'm less interested in plans on paper and more interested in ability to execute in reality," U.S. Secretary of Education Arne Duncan said in an interview last week. "If it's a plan that comes in from on high and doesn't have buy-in, it has much less likelihood of success. The only way you get better outcomes is you listen, you learn, you pay attention, and you reflect that with where you're trying to go."

Mr. Duncan went on to stress that the department wants to see input from parents, students, and the community—not just from teachers and their unions.

But just how much collaboration will be enough is unclear, as that decision primarily will be left up to a cadre of outside peer reviewers the department has chosen. Not meeting that requirement—to the satisfaction of the peer reviewers or the department—would be a deal-breaker. States would have to try again in a later round of waiver-judging, which is expected to occur next month and throughout 2012.

"It is a requirement. If a state's flexibility plan lacks collaboration, the department would view this as an undeveloped or missing piece," said Liz Utrup, a department spokeswoman.

Head Start for Some

Some states will have a much easier time satisfying the collaboration requirement than others.

States that have been working for months to retool their accountability systems, and have been soliciting input along the way, will be ahead of the curve, Mr. Wilhoit said, citing as examples Colorado, Georgia, and Kentucky.

But a lot of states fall into a second category. "I would say their outreach is not as extensive. They'll be working in a condensed time frame, with high pressure," he said.

In New Mexico, which plans to apply this month for a waiver, state officials have held nearly 30 meetings with the public and with education stakeholders around different parts of the plan and will hold teleconferences with stakeholders to solicit input on the overall plan, said Larry Behrens, a state education department spokesman.

Indiana has been working for months on a new student-growth accountability model, which will be the backbone of its waiver request, and state department officials—including Superintendent of Public Instruction Tony Bennett—have tallied up meetings with 30,000 educators.

Stephanie Sample, an education department spokeswoman in that state, said officials continue to meet with state-level union leaders about teacher-evaluation issues, which are also part of the waiver process.

In Kentucky, "basically, we've done it all," said Lisa Gross, the director of communications and community engagement for the state education department. "We've had meetings, asked for comments, shared information, engaged in formal and informal activities. This has been going on for months."

Though they predate the current waiver process, examples of collaboration in Kentucky include convening groups of teachers in late 2009 and 2010 to talk about the state's adoption of new common standards and accountability systems. Officials also held a meeting this month with the state's Teachers Advisory Council to review Kentucky's waiver plan.

Buy-In Theme

The waiver application's collaboration requirement is akin to the buy-in that states were required to seek as they competed for \$4 billion in Race to the Top funds last year. Those plans required sign off not just from a state's superintendent but also from its governor, and states won extra points if they had signed pledges of support from teachers' unions, school districts, and other groups. Though it was difficult to quantify, buy-in became a key factor that put some states over the top in winning a coveted Race to the Top prize.

The bar is much lower in the waiver-application process, however. Only collaboration is required—support for the waiver proposal is not—and only the state superintendent's signature is required.

"Consultation doesn't mean negotiation," said Tim Daly, the executive director of the New York City-based New Teacher Project, an alternative teacher-training program. Mr. Daly monitored the buy-in process as part of the Race to the Top competition.

But that also doesn't negate the importance of the waiver requirement, either, he added.

"We've had some very divisive and contentious policy changes at the state level in recent times," Mr. Daly said. "The department is sending a message that they don't want this to be done that way."

Case in point: Wisconsin. Its state teachers' union has been feuding with Republican Gov. Scott Walker over the passage of a law earlier this year that restricts teachers' and other workers' collective bargaining powers. Despite the rancorous relationship, the waiver process has—so far—been smooth.

Mary Bell, the president of the Wisconsin Education Association Council, said she's confident that teachers' opinions genuinely will be considered.

The National Education Association affiliate has held eight meetings throughout the state to draw input from local communities on what the waiver request should look like and will take a final report to the governor-appointed state accountability task force, which is working on the waiver plan. At those community meetings, Ms. Bell said, two big themes emerged: Parents and teachers don't think a single test score offers the final say on student learning or teacher performance, and they believe that the needs of special populations need to be better addressed.

The strategy to present these recommendations as stemming from local communities, and not just unions, was intentional.

"When we add our voices to the community at large, it will be seen as not just the unions speaking," she said.

Educator Optimism

In New Jersey, where the teachers' unions have clashed with state officials, there's optimism among educators about the process, said Martha DeBlieu, associate director for education research and issues analysis at the New Jersey Education Association, an NEA affiliate.

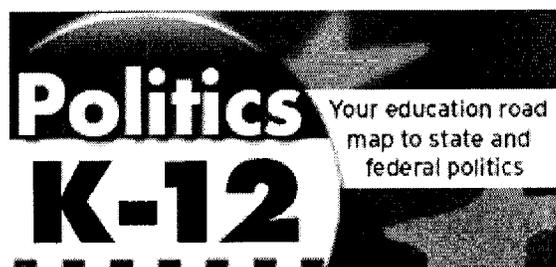
State officials reached out to the union to ask for feedback, and the union offered several key recommendations. Among them: that struggling schools be paired with successful ones, that multiple measures of student achievement be used in any teacher-evaluation system, and that an alternative evaluation system be created for high-performing teachers.

Whether those recommendations will be incorporated is an open question; the union was waiting to be briefed on the full plan late last week.

"We really were very, very encouraged that they did seek out our feedback," Ms. DeBlieu said, "and were generally interested in the ideas that we could bring forward."

Assistant Editor Stephen Sawchuk contributed to this story.

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