



A New Foundation for 21st Century Learning *Education Technology Investments in the 2011 Budget*

The 2011 Budget makes a strong commitment to technology that transforms how educators teach and how students learn. The President strongly believes that technology, when used creatively and effectively, can transform education and training in the same way that it has transformed the private sector. It makes a broad array of Department of Education programs, including the \$500 million “Investing in Innovation” Fund, eligible for technology-related investments, encouraging the infusion of educational technology across a broad range of programs in order to improve teaching and learning, and build the capacity at the State and local level to support better uses of technology for efficient and effective transfer of knowledge.

Potential for Transformative Impact: Last year, the President released *A Strategy for American Innovation*, highlighting the role of technology in educating the next generation. The strategy outlined the role that educational technology could play to improve our quality of life and establish the foundation for the industries and jobs of the future. For example:

- Online learning can allow adults that are struggling to balance the competing demands of work and family to acquire new skills, and compete for higher wage jobs, at a time, place and pace that is convenient for them. It can also improve access to a quality education for students in underserved areas.
- Digital tutors can provide every student with immediate feedback and personalized instruction, providing them with the information needed to diagnose and correct errors, and providing challenging instruction.
- Digital learning environments can generate a large volume of data that, if analyzed properly, will support “continuous improvement” by providing rich feedback to learners, teachers, curriculum designers, and researchers in the field of learning science and technology.
- “Games for learning” that are compelling and engaging have the potential to increase the attentive time on task that students engage in learning. Massive multiplayer games can support the social and team-based dimensions of learning.
- Simulations, such as a flight simulator for pilots or a “digital human” for medical professionals can allow students to engage in hands-on learning.
- Open educational resources can be shared, adapted, re-mixed, and re-used.
- Technology can increase parental involvement, provide new opportunities for students with disabilities and for English Language Learners, allow teachers to participate in “communities of practice,” and enlist professionals and retirees as online mentors.

Overcoming Barriers: A large gap remains between the potential of technology and its impact on education and training. There are many reasons for this:

- The existing capacity of the educational system for developing, identifying, and scaling up effective and innovative practices has been limited. Furthermore, current programs have not been sufficiently well-structured to infuse technology across the program areas and agencies to enable educators and policymakers to identify the most effective practices to replicate.

- As a nation, we invest only a small fraction of K-12 expenditures on R&D, compared to other sectors. This limits our ability to improve the state-of-the-art of educational technology, and increase our cumulative understanding of how to improve educational performance.
- Educators often lack the professional development that will help them envision how technology can support their teaching. Furthermore, many schools have computers sequestered in computer labs, and have not invested in technology rich classrooms.
- Existing federal programs have been too fragmented to provide State and district education officials with the tools they need to leverage technology that will strengthen instruction and increase student achievement.

Strategic Investments: As will be further elaborated in the National Education Technology Plan, overcoming these barriers will require strategic investments that support a coordinated continuum of activities to develop, validate and scale up effective technology practices that are shown to have positive impacts on student learning. The 2011 Budget makes important investments along all three of these tiers:

Development of New Education Technology and Technology-Based Interventions: Successful development of transformative education technology requires a focused strategy to improve the investment landscape for new innovations and advanced learning technologies through the development of common standards, common platforms and federal investments in breakthrough research that advances the state-of-the-art. The 2011 Budget takes critical steps forward by:

- Cross-cutting emphasis for technology-based innovations in Department of Education's (ED) \$500 million "Investing in Innovation" Fund, which makes grants to school districts and non-profit organizations, supports grants for development, validation and scale up of innovative activities for which there is evidence of effectiveness.
- The American Graduation Initiative, to improve and raise graduation rates at community colleges, which has passed the House and is awaiting approval in the Senate, includes \$500 million over ten years to design platforms, standards and content for world-class online courses and instructional materials available at community colleges and the Department of Defense's distributed learning network for students to gain knowledge, skills and credentials. These courses, and the platforms that support them, will be freely available and will be capable of easy dissemination.
- \$40 million for the National Science Foundation's (NSF) Cyberlearning Transformation Education (CTE) program to develop advanced learning technologies across all levels of education, with a focus on STEM learning and workforce development and the study of the learning process itself.
- Increased investments to fill critical gaps in the nation's education technology R&D infrastructure. These investments will build upon program funding in 2010 to support R&D on advanced information and digital technologies to improve all levels of learning and education. In addition, the Department of Education's Institute of Education Sciences (IES) will make ongoing investments to develop and evaluate innovative education technology tools through its research grants and its Small Business Innovation Research program.
- Continued funding for national activities to support strategies that will include development of data, content and financial interoperability standards, articulation of meaningful use of IT in education, development of new and common metrics for benchmarking education technology effectiveness, and research into the efficacy of digital content and online learning and how these tools can best support learning.

- The Administration is not requesting separate funding for Educational Technology State Grants in 2011 but rather is encouraging the infusion of educational technology across programs in order to improve teaching and learning, build the capacity at the State and local level to support better use of technology to maximize efficiency and the effective transfer of knowledge.

Validation of Promising Technology-Based Interventions: Successful validation of transformative education technology and technology-based interventions requires aligned evidence standards across federal agencies, with access to validation grants for promising interventions. The 2011 Budget takes critical steps forward by creating a crosscutting emphasis on technology in Department of Education's \$500 million "Investing in Innovation" Fund. In addition NSF, ED, Department of Defense (DOD) and other agencies have committed to working together to develop common evidence standards for how technology strategies can demonstrate their impact on teaching and learning.

Scale-Up of Effective Technology-Based Interventions: Successful scale-up of transformative education technology and technology-based interventions requires both investments to build the capacity for states to develop education plans that effectively integrate technology and the flexibility and incentives in a broad range of federal programs to include effective technology-based interventions. The 2011 Budget takes critical steps forward by:

- Support for capacity-building grants to states under the Department of Education's \$1.015 billion Effective Teaching and Learning for a Complete Education program. These grants would extend up to three years and support personnel for the successful integration of education technology activities into State and local instructional planning.
- Support for technology-based interventions within the \$1.015 billion Effective Teaching and Learning for a Complete Education program, which could include online curriculum, and the development, implementation, and evaluation of innovative uses of technology for teaching and learning as well as professional development to ensure students are college- and career-ready.
- Technology-based interventions will be an allowable use of funds across major initiatives within ESEA, including Title I (\$14.5 billion), portions of the Excellent Instructional Teams initiative (\$3.9 billion), Race to the Top (\$1.35 billion), 21st Century Community Learning Centers (\$1.2 billion), Graduation Promise Grants (\$1.2 billion over three years), English Learner Education (\$800 million), Assessing Achievement (\$450 million), College Pathways and Accelerated Learning (\$100M), Expanding Educational Options (\$90 million), in addition to IDEA and CTE grants. Furthermore, under these new program designs of ESEA, states and districts will have stronger incentives to use their program funds for cost-effective technology strategies that help achieve program outcomes.