a vision for K-20 education

TECHNOLOGY ➤ EDUCATION ➤ AMERICA’S FUTURE
Software & Information Industry Association (SIIA) member companies are the providers of the educational content, online services and software applications necessary to power U.S. education in the 21st century.
As the voice of the educational technology industry, we take a leadership role in developing this vision for K-20 education—a vision that utilizes modern technologies to create a world-class teaching and learning environment that prepares all students as global citizens capable of leading the world in innovation.
We believe that every K-20 educational system and institution can—and should—have an instructional and enterprise framework that embraces technology and e-learning in order to:

- Personalize learning to increase student engagement and achievement
- Provide equity and access to new learning opportunities
- Document and track student performance
- Empower collaborative learning communities
- Maximize teaching and administrative effectiveness
- Build student proficiencies in 21st century skills

Our vision is based on the experience that technology:

- Creates personalized learning experiences for all students
- Enables more efficient and effective teaching and learning
- Is essential for life-long learning

This SIIA vision calls for a coalition of stakeholders, including educators, pubic officials, business executives and academic leaders to recognize this mandate and to work together to realize this opportunity.

TECHNOLOGY ➤ EDUCATION ➤ AMERICA’S FUTURE

To better prepare our nation’s students to be digital citizens and succeed in a global society, we must combine proven, well-implemented and well-supported technologies with sound educational approaches. As a result, we will hone the innovative advantage of our institutions and increase the opportunity for each individual to fulfill their promise through education.
Background

Education and innovation have long been the hallmark of America’s success, and keys to our democracy, economic development and way of life. With help from excellent educators and institutions and an enterprising spirit, the United States has led the world in innovation and technology. Today, that lead is diminishing, as our educational system struggles to produce the global citizens and knowledge-based workers with the skills to succeed in the 21st century global society.

While our educational system has made progress over time, we stand at a new crossroad. Marginal improvements in our education system are no longer sufficient; systemic change is necessary.

Meanwhile, digital information and communication technologies have flattened the world, empowered individuals and transformed most sectors of our society. Young people have welcomed technologies into their lives, their homes and their backpacks. And yet, these 21st century tools have yet to be fully leveraged by our nation’s K-20 educational system to improve learning.

Key to the continued success of America’s citizens, society and world leadership is the revitalization of our educational systems, institutions and practices. To remain both relevant and effective in a century marked by rapid innovation and global competition, we must change our traditional education model—based on fixed time, place and pace—to a personalized model. We can best ensure equity of educational opportunity and success through a truly student-centered education system such that each student’s educational path, curriculum, instruction and schedule is personalized to meet their unique needs. This educational paradigm can best be achieved through the enhanced use of new technologies. Until now, the investment in technology has led to the discovery and development of “best practices,” but these success stories have not yet led to large-scale systemic change. Today, we not only have the vision, but we also have the societal imperative as well as the technological means, necessary to ensure our educational system remains worthy of our nation’s world-class expectations and standing.
The evidence is strong that technology and e-learning are powerful tools for revitalizing education and providing today’s students with opportunities that both reflect and prepare them for the world beyond the classroom. Pioneering schools have already pointed the way to what is possible when good education and good technology come together. From pre-school to graduate school, technology has repeatedly proven its power to connect and energize educators and learners and to improve learning outcomes.

We know that educational software, digital content, e-learning and related technologies:

- Help meet the personalized needs of all students
- Support accountability and inform instruction
- Deepen learning and motivate students
- Facilitate communication, connectivity and collaboration
- Manage the education enterprise effectively and economically
- Enable students to learn from any place at any time
- Nurture creativity and self-expression
Help meet the personalized needs of all students

Digital technology enables multiple approaches to learning to effectively address each student’s individual learning style, abilities, pace and interests. Through embedded assessment and personalized content, today’s courseware helps educators understand and respond to the specific learning needs of each student.

Simulation and animation make complex concepts more visual. Robust support tools—including virtual mentors and tutors, portals with tailored entry points to information, adaptive and accessible technologies for students with disabilities, and digital assistants to help with everything from searching and sorting to voice recognition—help level the playing field and deliver key learning skills, making it possible for a wide range of students to succeed and thrive.
2.

**Support accountability and inform instruction**

Computer-based assessment not only helps address, enrich and measure individual student progress as it occurs, it also provides educators with valuable data for making instructional decisions and creating more effective learning organizations. In assembling their digital learning portfolios, students not only build organization and presentation skills, but also document their complete educational journey and accomplishments. Portfolios can migrate with learners through their school years and beyond, and serve as an “education ID” that documents learning and achievement.

Technology is also the only means for helping integrate the pieces of the learning puzzle, creating new connections between isolated pockets of assessment and other student and school data over time. Technology helps pinpoint systemic strengths and weaknesses, creating a model for educational accountability and continual improvement.
Deepen learning and motivate students

Compelling and broadly accessible digital content and tools engage students, fuel exploration and motivate learning. These learning technologies range from virtual field trips that allow students to travel across the globe without leaving their desks, to interactive and adaptive courseware, to immersive, game-based multimedia simulations. They provide a range of modalities, topics, complexity and representations to ensure the breadth and depth of content resources needed to meet every student’s interests and abilities. Such electronic learning resources make lessons visually interesting within exciting contexts to capture and hold student attention. In this way, they provide both the means and the motives for achievement, helping to ignite in students a life-long love of learning. Ultimately, this passion may be how technology best prepares American students to thrive in an increasingly competitive and fast-paced world, where change is the norm and flexibility, ability and desire to learn are the keys to success.
Facilitate communication, connectivity and collaboration

As members of “Generation M,” the multi-tasking, multimedia-fluent and continually-connected young people in today’s schools and colleges are already accustomed to rich digital multimedia resources, online collaborative spaces and other social interactions mediated by technology. Participation in a variety of virtual learning communities inspires students and teachers to discover, explore, guide and share—and to refine the collaborative skills so crucial to 21st century work environments. With 24/7 connectivity, it is possible for parents and other community members to access information and communicate with learners, teachers, professors and administrators at times convenient to all involved.
Manage the education enterprise effectively and economically

Just as businesses have harnessed the power of technology to increase productivity and manage complex organizational tasks, schools and colleges are discovering the benefits of technology to help run the education enterprise. By employing powerful digital tools for data analysis and management, investing in key communications technologies, and leveraging the digital infrastructure for multiple purposes, schools save money while achieving better results. Accessible data also provides answers to questions of accountability and progress. Procurement, finance and accounting, human resources and professional development, physical plant, registration, scheduling and many other institutional functions are conducted more efficiently and effectively, thus increasing focus and resources on the core teaching and learning mission.
Enable students to learn from any place at any time

Advancements in technology provide increasingly ubiquitous high-speed, mobile Internet access. As a result, learning and teaching are no longer constrained by the physical limits of space and time (including the scheduled class time). Postsecondary education has led the charge in providing ubiquitous access to its students, making it possible for faculty and students to interact, communicate and learn nearly anywhere, at any time. Online learning helps meet the needs of traditional and non-traditional students, of rural students with otherwise limited options and of those for whom the traditional classroom model is neither practical nor convenient. Students are empowered to take control of their learning and enroll in virtual and hybrid classes and degree programs and engage in lifelong learning experiences that address their personal, academic and professional needs.
Nurture creativity and self-expression

Students of all ages are now creators of—and commentators on—digital content, not simply consumers of it. As they interact with peers around the world, students naturally come to see the value of collaboration, creative thinking skills and the importance of being able to convey one’s thoughts clearly, in an engaging and persuasive manner. These are skills that will serve them well in the workplace and as a global citizen.

Moreover, multiple forms of expression—including writing, music, the spoken word, visual arts and a variety of other media—are equally valued on the Internet’s digital stage. These representations tap into, and enable the development of, students’ full creative range, while allowing them to demonstrate mastery of knowledge and skills in more comprehensive and authentic ways.
The ability of a creator using modern technology to rapidly test new ideas without investing huge sums of time or money also enables the practical application of expansive thinking and innovative problem-solving—the very traits most valued in artistic and industrial pioneers.
To achieve this vision for K-20 education, SIIA anticipates an education system that effectively and as a matter of common, second-nature practice:

- Widely utilizes 21st century tools for teaching and learning
- Provides all members of the education community with anytime/anywhere educational access
- Offers differentiated learning options and resources to close achievement gaps
- Employs technology-based assessment tools
- Uses technology to redesign and enable the enterprise
1. Widely utilizes 21st century tools for teaching and learning

Examples include:

• Educational content delivered everywhere more flexibly, through multiple formats, media and platforms

• Interactive, adaptive, multimedia courseware and simulations

• Data management and analysis systems for the educator and administrator

• Adaptive and diagnostic computer-based assessment tools

• Security tools to protect student privacy and safety

• High-speed broadband access to enable collaborative and distance learning, video-based communication and other multimedia-rich interactions
Provides all members of the education community with anytime/anywhere educational access

Examples include:

- Education portals that provide teachers, students and community members with access to all types of applications, resources and collaboration tools
- Ubiquitous, reliable mobile devices and access points
- Virtual schools and online courses to ensure all students have high-quality courses and teachers, no matter their location or schedule
- Online professional development resources, courses and peer collaborative communities for K-20 educators
- Online student services
3.

Offers differentiated learning options and resources to close achievement gaps

Examples include:

- Individual learning programs and differentiated instruction for all students
- Online supplemental educational resources and tutoring, accessible to all students
- Courseware and learning management systems to optimize instructor effectiveness and computer-delivered instruction
Employs technology-based assessment tools

Examples include:

- Personal digital portfolios that travel with students from one year—and one geographic setting—to the next, to demonstrate a wide range of skills and knowledge

- Embedded, technology-based assessment that provides authentic, immediate measurement of student skills and knowledge, as well as suggestions for next steps

- Information systems that measure student, teacher, school and district performance, in order to enable individualized instruction, facilitate professional development and enable accountability and decision-making
5. Uses technology to redesign and enable the enterprise

Examples include:

- Access by educators to the level of technology resources, technical support and training common to other professionals.
- Infrastructure, data management, communication and systems diagnostic tools critical to the success of any business enterprise.
- Flexible use of resources, whereby technology is not supplemental but rather integrated into planning, budgeting and practice.
Our vision is based on the experience that technology:
• Creates personalized learning experiences for all students
• Enables more efficient and effective teaching and learning
• Is essential for life-long learning

This SIIA vision calls for a coalition of stakeholders, including educators, public officials, business executives and academic leaders to recognize this mandate and to work together to realize this opportunity.

To better prepare our nation’s students to be successful global citizens, we need to combine proven technologies with solid educational approaches. This will hone the innovative edge of our individuals and institutions, and increase the opportunity for all to fulfill the promise of education.
SIIA would like to thank the following for their contributions to this project:

SIIA Education Division Board of Directors

SIIA Education Vision Working Group

SIIA Education Division Marketing Committee

The Winter Group

CollinsConsults

And thanks to all Vision document reviewers, including member companies, educators, representatives of the technology industry and the education community