MY EIGHT INIATIVES TO BRING TECHNOLOGY INTO ARIZONA CLASSROOMS

The U.S. Department of Commerce ranked 55 U.S. industry sectors for technology use. Education ranked dead last.

There is a strong need to change this. Our students are native speakers of technology. We will always speak it with an accent. The students have grown up learning naturally from the internet, and our schools must tap into this to motivate them, and teach them most effectively.

This must supplement, and not supplant, traditional education. I am enough of a reactionary to believe that it is still important for students to read real books, with hard covers and pages to turn. It is also important that they have the same access at school to the technology that many of them already have at home, and get the benefits in teaching academics, from the skills that students have developed utilizing technology.

We must catch up in using technology in the classroom for at least three reasons:

First, it can be an effective way to deliver instruction.

Second, it can greatly increase our efficiency. For example, we have a shortage of math and science teachers. This has both an aggregate problem for the entire state, and a maldistribution problem. Technology can deal most effectively with a maldistribution problem: a student in Snowflake, with no available advance placement physics teacher, can take a course online with a teacher in Tempe. But it might also help solve our aggregate problem. Students will always need access to teachers for personalized instruction. But the availability of program learning should make it possible to have higher class sizes than would be necessary if a teacher had to do all the teaching. Vendors that I have talked to have not yet developed this aspect of the advantages of technology in the classroom, but I have encouraged them to develop this aspect of how technology can make us be more efficient, as it has in other industries.

Third, technology is the way many students are used to learning. We need to take advantage of that orientation.

I have pursued eight initiatives to improve the use of technology in Arizona's classrooms. Here they are:

First, IDEAL, the integrated database for enhanced Arizona learning. As announced in my State of Education speech in 2005, IDEAL was designed to monitor program effectiveness, identify what concepts need to be reviewed, give teachers performance benchmarks, provide web-based resources for professional development and teacher conferencing, supply web-based resources for student test taking for advanced placement coursework, and other individualized instructions.

We started with online AIMS tests. Before I took office, AIMS was a mystery, and no one knew what was contained in the tests. Now, through IDEAL you can take any AIMS tests in any subject at any grade level. We will grade your answers, and tell you the right answers for those that are wrong, and we won't tell anybody how you did.

The second goal for IDEAL was to provide online professional development. Teachers can take courses wherever and whenever they choose. Some, such as teaching English Language Learners, are free.

On IDEAL, teachers have access to over 3,000 films of actual lessons, and over 5,000 formative assessment items. Formative assessment refers to customized tests that teachers can give as they go along, for purposes of improving instruction to each student, as opposed to end of year tests such as AIMS.

Technology has also enabled us to report test scores by concepts. Let me give you an example to illustrate the importance of this. Suppose a student is very good in all math areas, but has trouble with long division. He currently takes a test, he gets almost everything right, but gets all of the problems wrong involving division. This generates a "C+" every time he takes the math test, year after year. We think of him as a "C+" math student. But, with data-driven instruction, the state furnishes the detailed information on how well the student performs on each concept, and the teacher catches the student up in division. Now the student is an "A" student on every math test that he takes.

For students who have not passed AIMS, we furnish workbooks that are customized: the student receives instruction and practice questions in areas that the student in which the student did not perform well on the AIMS test. This is the kind of individualized instruction that is an important part of the future of education.

The next step is referred to as the data warehouse. This enables us to report in greater detail. For example, we will be able to report to the principal of each school, how each of the teachers did for every concept to be taught, as measured by the performance of the students in that teacher's class on that concept in the AIMS test. This will help the principal target professional development for each teacher.

Another example is that our information about teachers includes what college program they attended. We will be able to track, for example, what percentage of the teachers from each teacher training program have at least 90 percent of the students make at least one year's progress in a year. This will help us improve our teacher training programs, which up to now, have only been able to be judged by anecdotal evidence.

The State Legislature appropriated $2.5 million for the data warehouse. Then the federal government allocated $25 million for which the 50 states could compete for funding of data warehouses. Arizona submitted the best application in the country, and even though we are only one of the 50 states, we received $6 out of the $25 million available. As IDEAL continues to develop, it will enable teachers to communicate with students and parents on what is being covered in class, how the student is doing, what

homework is due, etc. It will also make important educational data available to everyone in the state.

In my State of Education speech this year, I announced as one of three new initiatives the provision of this additional data, which I referred to as "transparency in depth." One of the hallmarks of good government is its transparency.

Don't worry, my discussion of the other seven initiatives will not be as lengthy.

The second initiative is a statewide instructional technology project. IDEAL is supported by our Statewide Instructional Technology (SIT) Project, funded with federal grant funds. The two goals of this project are to provide technology integration support into academic standards and to integrate IDEAL resources. The SIT project utilizes full time certified teachers, based in their county educational service agency, to work with teachers throughout the state.

The third initiative is the eLearning Task Force. The Arizona Department is leading the eLearning Task Force created through legislation two years ago. The Task Force is looking at innovative ways to help students master middle school math standards with 1:1 access. Cathy Poplin, our Deputy Associate Superintendent for Educational Technology, is the chair person for this E-Learning Task Force.

In October, the eLearning Taskforce created an RFP for the middle school math content that placed the importance on the software developer as the prime vendor and required partnerships with hardware vendors. This is becoming a new model assuring digital content drives initiatives and the hardware supports them. Twelve proposals were received and are currently being evaluated.

The fourth initiative is the Intel ® Teach Affiliate. The Arizona Department of Education is one of eleven Intel® Teach Affiliates in the United States. Intel® Tech Affiliates provides a research-based professional development program that guides K–12 classroom teachers to integrate technology tools and resources into their own lessons to promote 21st century learning and student-centered practices. Courses are available for FREE for K-12 teachers and school leaders, supported on both PC and Mac platforms.

Focusing on schools recently coming out of school improvement, the ADE School Improvement coaches and the Technology Integration Specialists, a part of the Statewide Instructional Technology Project, will work as a team to provide the Intel® Teach Essentials Course and the Intel ® Teach Thinking with Technology course. Intel ® Teach Leadership Forums will also focus on creating a strong leadership vision for technology use in Arizona's schools.

The fifth initiative is 8th Grade Technology Literacy. As a response to Title IID of NCLB that all students should be technology literate by the 8th grade, Arizona was one of the first states to formally access a percentage of their 5th and 8th students on technology literacy skills. Last year's assessment established our baseline data and this year a

percentage of 5th and 8th students took a pre and post technology literacy assessment. This data is helping districts made critical technology decisions as well as guiding our state level technology activities.

In fifth grade the number of students proficient in technology in 8th grade went up from 36 percent to 54 percent.

We are also assessing how well teachers are able to use technology in their classrooms. Using on online tool from Florida, teachers in our EETT grant program are assessed based on the National Educational Technology Standards for Teachers. This data will be released in June, 2008.

The sixth initiative is the Instructional Technology Systems Pilot program - 15-901-04. The 2007 Legislation session provided $1 million for an Instructional Technology Systems Pilot program for one K-8 school. On January 4, 2008, the application was made public. More than 32 districts participated in one of three mandatory webinars to learn more about the two phase application process. Fourteen schools responded with Letters of Intent for the Phase I. On February 1, 2008, five schools were invited to move to Phase II. Phase II applications are due on March 21, 2008.

The seventh initiative is the E.-Rate Task Force. An E-Rate Task Force is bringing together various governmental agencies: to create a fully funded state E-Rate coordinator. States that employ full-time E-Rate coordinators are able to recoup the full funding submitted to the Universal Service Administration Company, Schools and Library division by the state's consumers. ADE provides technical assistance to all schools in Arizona on the E-Rate process and acts as the official Technology Plan approver.

Our eighth initiative is one laptop for each student. This past year, we began a pilot project for high schools where every student would have a laptop. Empire High School in the Vail School District became our lead school. Empire is the first public school designed and built for student laptop based instruction in the country. Pilot schools, following Empire's lead, included: Benson High School (Cochise County), Vail High Charter School (Pima County) and Gilbert Classical Academy (Maricopa).

These schools attended a two day 1:1 boot camp at Empire high in July. The boot camp introduced participants to effective strategies to integrate digital resources to assure students are successful at meeting state standards. In addition, Empire High School teachers presented classroom management tips and shared their experiences in using laptops and digital resources with their students.

Eventually, we expect that every high school in Arizona will have a laptop for every student. We have proven that digital tools enhance teaching and learning. Students that use digital media applications find learning fun and exciting. Districts and schools that have implemented digital initiatives have cited decreases in absences, tardiness and disciplinary problems, and increased student motivation and higher levels

of communication between students, parents and teachers. In the future, if the U.S. Department of Commerce does another ranking of the 55 U.S. industry sectors for technology use, and breaks it down by state, we are determined that Arizona will be one of the country's leaders in the use of technology in the classroom.