



## NCTI 2009 Innovators Conference

### ***Monday Keynote***

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### **Transcript**

Thank you very much and good morning everyone, how are we doing today? Ready for a little stretch? It's great to be here with you this morning, it's a beautiful day in the Washington, DC area. I think like many of us in the east coast last week we were inundated with rain and yesterday finally the sun broke through and it's been great, so for those of you who are from out of town, welcome, welcome to DC.

Larry mentioned that he had been in Italy last week, so was I as a matter of fact. I was in Sicily though and I found out that the password is 'Il Padrino.' If you put 'Il Padrino' you get the wireless for free, not a problem.

I wanted to spend a little time with you this morning to kind of put technology in perspective from the administrators point of view and I think one way to kind of do that is to kind of share with you the history of technology in education and also to affirm the fact that probably education is one of the most conservative and resistant to change institutions that we know.

Consider the fact that probably one of the oldest technologies in education is still in place in every classroom, right? Slate and chalk – the old blackboard – is still there in just about every classroom in America.

I remember some years back I was in Dayton, Ohio, where they had this wonderful museum at the Air Force base there. And we were having a dinner on the floor of the museum. We were seated right between one of the Apollo shuttles on one side and then one of the Wright brothers' original planes on the other side. And you couldn't have had a better representation of the growth of technology in the 20<sup>th</sup> century than those two artifacts, and here we are in the middle of those two; in a period of little over 80 yrs we had gone from this wood, canvas, wire structure that flew a couple hundred feet in the air, to something that was orbiting the Earth.

The next day, as we tend to do at these events, we were pleased to go to one of the original one room schoolhouses in the Dayton area, and as we walked in to this early 1900's vintage school what we saw basically was a classroom that could still be a functioning classroom today because it had the desks, it had the books, it had the blackboard in the front of the room. So over a period of basically the 20<sup>th</sup> century, little has changed in terms of education and how we educate our kids and that is prevalent in everything that we do.

Look, for example, at the school calendar. We still follow what's basically an agrarian calendar that provides two months in the summer off – July and August – for kids because back in the



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day the kids were needed to help bring in the crops. And in spite of everything, that we know and all the developmental research that suggest that there's a tremendous amount of forgetting that takes place over those two months. Nevertheless, we still have those 2 months off from school.

I recall as a young superintendent on Long Island the first time that we confronted a shortage of oil on the East Coast, and really throughout the United States, but on the East Coast, the schools on the northeast of the United States, and I'm talking NJ, NY, and a lot of the New England states decided that they were going to take a week in February and close schools during that week to conserve oil. Now that happened way back then. That week is still there, it has not gone away! Because once we put it in place, families found out that what a great time to go skiing, what a great time to go on vacations. Teachers loved it for the same reasons. So for having nothing to do with what is best for children, we still have in the northeast that spring break in February even though there's another spring break later on in April.

I was the superintendent of schools here in Virginia, in Fairfax for 7 years. Virginia today is still the only state in the union that it is against the law to be in school before Labor Day. You can get a waiver, depending on the number of closings that you had the previous winter because of snow to begin earlier, but in Fairfax County we were obliged to begin school after Labor Day, and it had nothing to do with what was best for the kids, it had everything to do with the resort industry in Virginia. As a matter of fact we called it the 'Old Dominion' bill because the industry in Virginia is so powerful that it will not allow the legislators to change that law simply because they want to make sure that come Labor Day, families go to King's Dominion, families go to Williamsburg, and all of the [resorts] in the state because it's one of their big money maker weekends.

So we see the high school, the seat time that is still required in so many states as we try to move forward with online learning and virtual schools.

There are a lot of factors in education that resist any kind of change to move us in the right direction. Now technology is probably, can be, and has the potential of being technology as we know it today, the most powerful learning tool ever. But we also recognize that it is only as powerful as the ability of the people that use it, whether it be the student, or whether it be the teacher.

And there lies yet another problem that we have seen that a lot of the resistance to the use of technology in the schools comes from the very adults whose job it is to use the technology to better train the kids. Because they're not familiar with it, they don't know it, they don't understand it, and they don't know how to use it.

The kids don't have that problem, the kids are in love with technology and they use it every day, it's attached to them.



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I have a 17 year old daughter who sleeps with her iPod and would shower with her iPod as soon as they make it waterproof. And she has that laptop and it's always on there, I can't get her to do her homework but I can't get her to go to sleep at night because there she is on the computer, adjusting her Facebook page, doing all the communicating with her friends. So the kids are in love with technology, they use it constantly, but we are not doing that yet in our schools.

We have not yet learned to capture the motivating aspects of technology for kids in learning. We have not yet learned to capture that in all of our schools.

I became a school superintendent back in 1977, that's 32 yrs ago, in Deer Park, Long Island, and I recall my first exposure to the Commodore PC. Now some of you probably don't even know what the Commodore PC is, maybe some of you weren't even born 32 years ago, but the Commodore PC was that first desktop computer that was at least at that point in time to my recollection being sold to the schools, and I bought a whole bunch of Commodore PC to create labs in our schools, but there wasn't much that that Commodore PC could do. It was great for playing Space Invaders, but not much good beyond that.

Primarily the only quality that it offered for kids was the ability to learn to program. And at that time it was a little tape deck cassette that you would slip into the computer and then you would program the computer to do silly things like say "Hello" back to you or answer kinds of questions and that basically, back in those early 70s, late 70 years, was all that the technology, in terms of computers we know today, was used for. It was a subject that was taught in school called programming, that's basically how we used technology during that period of time. It also began to be used as a remediation tool, I remember a company called [...] and it was one of the first companies we bought software from in our school district, and we put it in the labs so our kids could get remediation in terms of math and reading, and it was not much more than program learning, back in my college days the program textbooks that we used to have, this was basically the electronic version of the program textbooks.

And it was back in those days, now going into the early 80's, I became in NY what is known as a BOCES superintendent. The BOCES stands for Board of Cooperative Educational Services and the BOCES in a state like New York, and a lot of other states called by different names where you have a lot of small school systems who don't have the ability to provide services for its kids like special ed and occupational ed, the BOCES assume the responsibility of doing that.

So we at the Western Suffolk BOCES on Long Island provided these services and I remember my first experiences in walking through the classrooms and beginning to see how that assistive technology was being used with so many of our special ed kids. [It was] providing them with the enhanced learning opportunities that were so critical for them, particularly in terms of their handicapping conditions, as simple as the hearing aids for the kids who were being mainstreamed in the classroom, and the teacher with the microphone strapped below her chin



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who was able to teach the class and assure that the student who had hearing impairments was able to hear what the teacher was doing, or even the electronic programs that provided the kids with the kind of repetitive work that allowed these youngsters to grasp concepts and ideas that would certainly be helpful to them.

So in those early years, computers began to assert themselves, technology began to assert itself in terms of a useful tool that would have a very specific approach in the classroom, but more so in those early days I believe for our children with special needs than in the general population... I recall when I first came to Fairfax County as superintendent in 1997 and I recall walking into the class and I've always been in love with technology, I loved it, it's just so cool, so I remember in 1997-98 walking into my office in Fairfax County and seeing that there wasn't a computer on my desk and then walking outside to where my administrative assistants sat and seeing that they still had the IBM typewriter, and no computers. On further analysis and asking my technology person in the district what we were doing with email, to discover that we had eight different email services in the school district so that it was totally impossible for me as the superintendent to communicate at once with my entire staff, and I'm talking 1997, it's not that long ago, it's only 12 yrs ago.

So one of the first things that we did in Fairfax, is that for sure I ordered a computer for my office, and I ordered computers for my assistants and they were like "Oh my God, what are we going to do with these things? We know how the IBM selectrix works, but Word Processing, what is that all about?"

And it was, again, I'm talking about the resistance, there was resistance to doing this. I had a huge fight in trying to get everybody in the district to move away from whatever email service they were using to one so that we could all communicate, because they wanted their preferred service to be the one to be used. I had a huge war with our staff over whether we were going to go with the Apple or the PC. That was a huge one. All the elementary teachers wanted the Apple, and all the secondary teachers wanted the PC. But again, we had to make a decision, we couldn't have both. We wanted to have that connectivity; that ability to be able to communicate with all and to have a system in place.

We had 168,000 students in Fairfax, 242 schools and it was important for us to be able to have a system in place where all of those schools could communicate and all of those schools could be in sync.

So we fought those early wars, the PC won, primarily based on the fact that there were more programs available for kids to be used in the schools using the PC than Apple at that point, and then we moved forward. But the email of course, the use of technology as a tool for communication and management because of the internet soon outpaced the use of technology as an instructional tool in the classroom. We were now using emails to communicate not only with staff but began to communicate with the community. And I'm not so sure that that was a



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smart thing to do, because when the community had the ability to directly communicate with the superintendent they took full advantage of that, no question about it, as did the staff.

But of course today, we know that that email is just ubiquitous in terms of its use and the social media programs – Facebook, Linked In, Twitter. We do all of these things now that keep us in touch, even when we are in Italy, or other parts of the country.

But it still comes back to technology, and it's effectiveness as a tool in the classroom and as the communication aspect of technology began to outpace really its instructional applications.

We began to see that school districts riled up and really expressed concerns over the use of technology and began to filter how that internet access that was available for kids.

So that today, for example, the majority of school districts in America still will not allow kids to go on YouTube because there is the potential for the possibility that by going on YouTube they are going to get on sites that they're not allowed to see, but at the same time, they're being deprived of a very effective and fantastic educational tool. There's the issue of sexting as the handheld and the cell phones came into being and kids began to use it, and that of course is also a real concern. But that again has forced the school districts to place restrictions on the use of cell phones within the schools.

I remember again, going back to my days in Fairfax County, where the first time that we made a big decision to allow children to bring cell phones to school was after 9/11. And it was done primarily because we were so confronted in this area by this whole fear of terrorism and potential attacks that we wanted, and the parents wanted, to be able to communicate with their kids in the event of an emergency. So the decision to allow kids to bring cell phones into school was not done because of instruction, it was not done because of any other reason other than an emergency where children would be allowed to communicate and by the way that's still the case in most school systems in America – kids are allowed to have their cell phones with them but they're not allowed to have them on and they're not allowed to use it.

Two weeks ago, my daughter in her classroom in Oakton had her iPhone taken away from her, because she apparently had it out and she had to go to the office with her teacher afterwards. And this is one of the advantages of having been a superintendent, the principal said to the teacher, "Don't you know that this girl is?" And the teacher goes, "Jillian?" And she goes, "Her father is Dan Domenech, the previous superintendent!" And he goes, "Ohhh, here's your cell phone." Of course, she made the mistake of telling me that when she came home and I said, "Don't let it happen again, because you're not supposed to, you know you have to abide by the rules."

But think about it, here we have a tool that is just incredibly powerful...I've been in classrooms all over the United States, in areas that clearly qualify as predominantly poverty areas, schools with over 80% of the kids in that school in free and reduced lunch, and I will walk into a



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classroom, and I will ask how many kids in that classroom have cell phones and practically every hand will go up. There undoubtedly are very few children in America that do not have a cell phone.

When we think about the potential that this offers instruction and the ability to use these handheld devices as you were mentioning early on – you were talking about convergence and customizability, evidence-based research, portability, these are all elements that clearly speak to the power of a technology that is moving forward.

You know, at one time, again years back, we saw the power of the computer in the classroom in terms of the desktop, the PC, primarily as a lab, and by the way here again, go into the majority of schools in this country and you still will see predominantly the lab in place. There are, by the way, 14,000 school districts in America. Predominantly the majority of schools are still adhering to the lab; very few schools have laptops for every child, very few schools have the technology in place that allows every child at once to be online using their computer. Not the least of which is the bandwidth problem in terms of getting a lot of the technology into the classroom.

I mean we have built the super highway but the exit getting off to the schools is a dirt road. There are many schools in America that still don't have anything better than a T1 line going into their schools, and so their ability to use much of this technology, at least the web-based technology, is very much limited.

But the handheld offers a lot of potential because the cost of these devices is getting to the point where they're becoming very affordable. The reality is that there isn't much of a differential today between the cost of a textbook and the cost of a handheld. And of course we, before I came back to assume the Executive Director role for the American Association of School Administrators, I left Fairfax in 1998 to go work for McGraw-Hill Publishing and I spent 4 years working with McGraw-Hill, and publishing companies are very much confronted today by the transition, when is the transition going to be made from the printed textbook to the electronic version of the textbook? And I dare say that I doubt that there's a publishing company out there that couldn't do it today, but they will tell you that what the majority of school districts in America today are still buying is the textbook and the districts that have attempted to go with just the electronic version soon find out that it's not enough, and they revert back to the textbooks. So we have places where we have the electronic version and the textbook.

But we know that it's going to happen, we know that it's only a matter of time before it happens, but we have the ability to make it happen today, yet it's still not as prevalent. You know, we look at Governor Schwarzenegger in California talking about "Let's not buy any more textbooks, let's just have the electronic version of it" but the reality is that in practice it's not happened and it's not going to happen for some time yet because the parents want the security of that textbook, the kids want the security of that textbook, and the technology does not yet



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afford in terms of the ability to have all of this information readily available for the kids, it's still not there.

I went to a couple years ago to the High School of the Future in Philadelphia, at that point the superintendent there had been one of my assistants here in Fairfax, and I had heard so much about the school and I wanted to see it. As we were going to the school, Tom Brady who was the superintendent, says, "Dan, I don't want you to be disappointed, but you're not going to see what I think you're going to see."

And sure enough when I went into the school what I found out was that on that day and just about any given day as much as about 25-30% of the kids did not have their laptops. And they didn't have their laptops because it was either broken, it had been stolen, or they had left it at home. And then as I walked around the classrooms I found that many of the teachers were cheating – they had their textbooks hidden underneath their desks and were breaking the textbook out to teach from the textbook simply because they didn't have the content on the laptops that they needed to have or wanted to have.

Now all of that is changing and will change as we move forward but again there is that resistance to making these changes. The technology is there, the technology is in place, but there is the resistance to changing.

Now as we look to the future there is no doubt that again that what we as educators look for technology to do is to realize that dream that we've always had and that is the ability to fully individualize instruction. Today still, again, you walk into your average classroom and you see your average teacher in the front of the room, a talking head, lecturing to a group of youngsters. The average classroom will have anywhere from an average of 25 kids in it that may range from 15 to 35 or 40 and all of these youngsters are being taught by the teacher at once as if they all had the same ability and the same needs when we clearly know they do not.

The essential move is to move us in the direction of making the teacher a director of learning, not the sage on the stage, but a director of learning. The person that has the ability to diagnose the needs of each and every child in the class, and then develop for each and every one of those children an individualized education program as we do in special ed, but we need to do this for every child. And we have the ability to do it, there's no question about it but that the technology is there that would allow the teacher to organize the classroom as a learning environment.

As a matter of fact, one of the biggest obstacles we still have in education is what I refer to as the edifice complex – the notion that learning can only take place in the building where school is held or classes are held, when clearly we know that so much learning can take place anywhere if you have the tool and the connectivity to bring that learning to you.



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So clearly we are at the point – we see the increase in online classes that are being offered. It's prevalent at the university, the college level, not so much at the high school level and very little at the elementary, but there are more and more virtual schools that are being created that are bringing online learning. In Fairfax County we started virtual programming and online courses while I was still there, and today every high school student in Fairfax has the opportunity to take at least one online course per semester and there's the capability there for even more.

But I go back to one of my earlier statements that there are still states that require the seat time, and if a child hasn't been in a classroom for so many days and counted present they cannot get credit for the course. So you have to get waivers, you have to get exceptions to these regulations in order for kids to be able to get online credit. And again, is it necessary for the brighter advanced kids in a class who can proceed at their own pace to be slowed down by the rest of the class when it's no longer necessary that we do that, or is it required that they learn what they need to learn in a semester in a year even though they don't have the ability to do that?

And that's where the power of technology and individualization comes in when the special ed, the special needs child will have as long as they need to learn, and the same thing will be true for the gifted child who could graduate high school as a 10<sup>th</sup> grader or 11<sup>th</sup> grader and not have to be there through the senior year in class...

So the potential for technology is tremendous. It certainly is being used today, but nowhere near the level that it needs to be used and nowhere near the potential, and again we know how quickly the technology changes, we know how it progresses. I think that in the area of special ed and assistive technology the opportunity to finally fully integrate special needs youngsters into regular classrooms where they are assisted in that learning environment by technology is huge and it has tremendous potential, and we have seen as we look ahead the potential for implants, the potential for all kinds of devices that would allow kids that can't hear to hear, kids that can't see to perhaps see, kids that can't touch to perhaps touch, to walk.

I mean I stand before you right now, I have more titanium in my body than, I'm a bionic man. I travel a lot and every time I go through the airport security bang bang bang, all the bells are going off, I've had my hips replaced, and who knows what else I'll have replaced. So the medical advances, the technology advances are huge.

But I think the most important thing to bear in mind is the resistance to make full use of what's available, the fact that there are laws and regulations that need to be changed. I mean I love what Arnie Duncan [U.S. Secretary of Education] is doing, in terms of advancing the agenda, but it's also important that we look at existing rules and regulations and begin to say these things have to change and they have to change across America, not just in one place. Until and unless these laws change, they will remain impediments to the use of technology and the power of realizing the effects of technology in our classroom.



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So I thank you very much for your time and your patience this morning, it's a pleasure to be with you and I'd be more than happy if there are any questions from the audience.