

***New York Education Reform Commission
Testimony addressing use of technology in the Classroom
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Executive Summary:

The proliferation of advancements in technology has produced a new generation of learners. Today's students are digital natives (Prensky 2001). They are super saturated in media and gaming technologies. Yet our schools have failed to keep up. And while we try valiantly to train our teachers (Digital immigrants), we are unable to keep up with the speed of the technology and the seamless ability for children to adapt to these changes. I believe we need to embrace a *curriculum of engagement* in which we leverage the technologies available to engage our students in the content they must know. Technology is a vital tool to bridge the schism between the traditional notion of being educated and the new reality in which educators find themselves. Namely, educating a generation for occupations that have not been created yet.

Our schools must embrace and explore the opportunities that technology can offer. Currently there are many technologies available that allow us to address the diverse learning needs of the students in their classrooms. For example it is now possible to differentiate and individualize student work using technology. Free websites like the Khan Academy and PBS allow us to easily differentiate content for students based on academic ability. More importantly they provide 'dashboards' that allow teachers to monitor student work and activity. More sophisticated programs such as eSpark and Compass Learning allow us to individualize work based on standardized exams. This has the dual effect of not only providing students with engaging experiences based on their specific needs but allow teachers to have a tool to help all students grow regardless of each child's starting point when they enter the classroom.

These software programs allow students to engage in the technology they enjoy while simultaneously working on skills based on standardized test data. More importantly, at the completion of each skill a student takes an exam that mirrors the standardized assessment. In Mineola we have leveraged these programs to provide individualized homework based on standardized tests for students Kindergarten through grade 7. We are constantly seeking to use new technology to engage our students as well as provide unique opportunities that we were previously unable to provide. This month for example we will begin a foreign language initiative in our third grade. Students will meet with a certified Spanish teacher once a week and the use Rosetta Stone twice a week to learn Spanish.

Recommendations:

- The State should create and fund a virtual school. New York is one of ten states in the nation that does NOT have a either a State virtual school or a state led online initiative. Of those ten, 7 have multidistrict virtual schools. Only NY, NJ and Delaware have not capitalized on the growing popularity of virtual coursework. (Education Week 3/15/2012) By entering late into this arena, NY has the opportunity to learn from the mistakes of the early implementations. Sustaining long term funding that allows for

growth is one issue. (See article "Financing Challenges for the States") More importantly is the platform in which the content is delivered. Similar to college hybrid online models, instructors must be able to interact 'live' with the students on a regular basis.

- The State should create and fund a five year computer replacement system. The onset of computerized assessments (PARCC in 2014-15) will find the majority of school districts unprepared to deliver these exams. Traditional funding sources like textbook allocations should be reexamined and perhaps portions of those monies freed up to fund a supply of equipment. Districts should have a choice of the type of device they receive. .
- Textbooks are a vestige of traditional learning. The amount of quality information available online is staggering. It just needs to be vetted and organized. The State should support electronic textbooks. Software programs such as iAuthor, make the creation of interactive books easy and highly engaging. Currently SED has an RFP to pay a third party vendor to create common core curriculum guides. There are plenty of qualified teachers around the State that can create this material easily and efficiently.
- Lastly and probably most important is the availability of WIFI access for those who cannot afford it. Students cannot access the plethora of resources online if they cannot get online. The State should partner with online providers to deliver low cost Wifi for students.

Technology in action in Mineola UFSD

Over the last two years Mineola School District has restructured and reconfigured our district and went from 7 buildings to 5. We have dramatically reduced personnel without losing one program; in fact we have added programs. We have successfully leased both of our vacated buildings and now have added a consistent revenue stream that has countered fluctuating State aid.

We did not merely close a building. Instead we capitalized on underutilized buildings to better serve our students. We balanced student populations by closing an elementary school and splitting that school's student population into 2 other buildings. We brought equity to class size and gained an economy of scale that eliminated a redundancy of staff. As you could imagine the barriers to implementing such a wholesale change were great. But with community participation and purposeful capital improvements we achieved our goals. Through our efforts we were able

to enhance our academic programs by offering Algebra to all 8th graders and starting an elementary Spanish program in Kindergarten and first grade. In addition we began a 1:1 computer initiative in which every middle school student received an ipad to take home. A thoughtfully crafted Capital plan allows buildings to expand over time thereby insuring the buildings that have been closed will not need to be reopened.

These efforts have allowed us to be innovative and become a leader in developing a curriculum of engagement using technology integration. It is important to note that technology can mean many different things. In school settings technology can be organized in 4 major areas; systems, communication, instructional and assessment.

Examples of:

- **Systems technology** – network centers, student management software, finance software, curriculum management, networked copy centers, scanning
- **Instructional technology-**
 - Hardware -interactive white board, document cameras, hand held devices, 1:1 initiatives, science probes, assessment ‘clickers’
 - Software- eSpark, Compass Learning, Edmodo, Rosetta Stone
- **Communication technology** E-mail, texts, social media(Twitter, Facebook), blogs, wikis, notification systems,
- **Assessment technology** Computerized assessments (NWEA, PARCC), testing and grading solutions

Each area is uniquely independent but often intertwined. For example without a solid networked infrastructure delivery on instructional technology is difficult. Any plan involving technology must account for all of these aspects. An equally important consideration for technology integration is the speed in which technologies change. Planning must account for upgrades and/or replacement within a five year period.

Mineola’s journey began in 2005 when a new technology director and new technology provider came to the district. They were faced with ten year old equipment and a hodgepodge network.

Purchasing Equipment:

Mineola UFSD doesn’t have equipment older than five years and our budget does not go up. We have created a cycle of purchasing through our BOCES that allows us to receive equipment up front and pay for it over 5 years. The hypothetical example below demonstrates that in a five year period we received 1.25 million worth of equipment and our budget never exceed \$250,000. After the fifth year the budget remains flat; it doesn’t increase or decrease. There is no decrease because in the sixth year you replace all of the items you purchased in year one. If the items do not need to be replaced you have an option to purchase different and/or new technology without changing your budget.

	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
250,000	50,000	50,000	50,000	50,000	50,000	
250,000		50,000	50,000	50,000	50,000	50,000
250,000			50,000	50,000	50,000	50,000
250,000				50,000	50,000	50,000
250,000					50,000	50,000
1.25 MM		100,000	150,000	200,000	250,000	

This type of budgeting and purchasing has allowed Mineola to stay current with new technologies and expand our vision. In the first few years the predominance of monies went into infrastructure, desktop computers and Interactive White Boards. In 2010 we began our implementation of 1:1 devices.

Engaging Student Using Technology:

In 2010 we were the first district on the Long Island to deploy ipads to 100 fifth grade students in one school. The pilot was designed with two questions in mind.

- Could a hand held device engage students in academic content?
- Can we collect data to demonstrate that the device increases student achievement?

We collected data through parent surveys, teacher narratives and student videos and presentations. The engagement question was easy to answer, it was a resounding yes. The question of does it increase student achievement was not as easy to quantify. In September 2011 we expanded the pilot to include all 5th grade students (200) received ipads and all 6th grade students received net books. The same two questions were the basis of the expanded roll out, but we added a third question: does the type of device matter? Would students be as engaged in content using a net book as they were with an ipad? We used the same methodology to gather data in year one with one exception.

We partnered with a small start up firm in Chicago that created individualized student ‘apps’ based on academic achievement. The product, eSpark, used our computerized assessment data to create skill based activities focused on individual student need. Our hope was to see an increase in the standardized score that the app targeted. We implemented eSpark in a 5th and 7th grade co-teacher class. By June of 2011 we had definitive answers to our questions. The ipad was an overwhelming winner in the device category. Net books could not rival the touch screen capabilities of the ipad and they were not as durable. eSpark provided us with achievement data that clearly demonstrated student gains in targeted areas. Students provided us with a tremendous amount of feedback on engagement

Last month we deployed 600 ipads to every Middle School student and recently were invited to apply for Apple’s distinguished program award; one of three schools in the Northeast. Every middle school student will receive an eSpark app this year. The success of the pilot last year resulted in our Board of Education declaring, “If it worked that well for 50 students then we should do it for all students”

After the winter 2011 administration of our computerized assessment exam (NWEA) it was clear the eSpark pilot would yield positive results in the spring. Since eSpark is solely used on ipads, we began to search for a web-based product that we could test in our younger grades. In March we piloted Compass Learning in grade 3. Similar to eSaprk, this product was able to take individual student NWEA scores and link them to age appropriate skill games and activities

based on student need. The students enjoyed the activities and we decided to implement Compass Learning of every student Kindergarten through grade 4.

Differentiated homework using technology:

The speed in which technology advances coupled with the increased use of technology by our youngest student's forces educators to think differently. We need to challenge traditional practices and thoughts that have permeated public education for decades. A perfect example of one of these practices is homework. The traditional mindset believes that homework is designed to be a reinforcement of the daily lesson. What happens when the students didn't understand the lesson? Homework needs to be differentiated the same way you differentiate class work for students. Technology allows this to happen. In Mineola for students in Kindergarten through grade 7, homework is done on a computer. Teachers are able to give assignments on eSaprk and Compass learning and completely monitor what the students are doing. Product developers realize that teacher "dashboards" are critical in a successful implementation of the software. Student time and use on these systems are monitored and data is collected. Both systems also provide formal assessments after the completion of a skill. These data can be extracted and used to inform classroom instruction.

Technology can also aide in the delivery of content. This year we are running a pilot using Rosetta Stone to help teach world languages. We are currently faced with a dilemma of how to fit new programs into the day without sacrificing time in ELA and math and/or eliminating a program that already exists. This month we asked for 3rd grade volunteers to give up a recess period to learn Spanish. Students will attend class with a certified language teacher once a week and then be required to complete two 30 minute homework assignments in Rosetta Stone. The district will provide the software on ipads to aide the student in the completion of the homework. Fifty percent of the grade (100 students) volunteered over a weekend. This type of delivery of content is similar to a college hybrid online course. Some of the time the class meets in person and other times work is completed online. We will assess the pilot at the end of the year and determine our plan for world languages moving into the future.

Conclusion:

Successful implementation of technology begins with a vision. The vision cannot be specific to a device or software; it must be a destination. In Mineola our vision is – To leverage all available technologies to engage students in all content areas thereby increasing student achievement. How we accomplish this is multi-faceted. There are many obstacles that can deter a district in such a vision. Careful planning, purposeful pilots and successful partnerships can make the vision a reality. We believe we are well on our way to reaching this vision for the student and families in Mineola.