e-Quality

by Dr. Miriam Masullo and Dr. Antonio Ruiz

In the Spring of 1992, prompted by what was perceived as a widening gap between technologies outside and outside the classroom, the National Academy of Sciences convened everyone that could help and anyone that would listen, to its great halls in Washington D.C. The convocation called "Reinventing Schools: The Technology is Now", challenged the nation to put technology in the classrooms. There, in a corner of the Great Hall at the Academy, a team of scientists opened a window into the future and demonstrated what we hoped would be like to meet that challenge.

On tables covered with white cloths, several computers and TV sets played digital videos, painted digital images, and navigated text and menus driven by commands entered on keyboards, through remote control devices and from telephone keypads. The content was all educational, in all conceivable forms and in from all subject matters and things of interest. It was digital, it was on-demand, it was all someplace else, as if by magic. "Is there anything on standards here?", a teacher asked. That "here" would soon be called cyberspace. She did' care what or where it was, we had no name for it. All we cared about was what it could do for this one teacher. "Yes, look at what Project 2061 has put out there", one of us said. "Are there any animations here?", demanded a young customer, We had caught his interest, he had no trouble moving around the new dimension and wanted more of it. "I particularly like the ones in the National Geographic space", one of our colleagues answered from across the hall. "Terminator II! Cool!", said another youngster, as a teacher approached yelling: "What!". But then he smiled as he saw the transformation of the bad guy of the film being used to explain how tilinol works. The short clip from the American Chemical Society proved to be overnight science success with children all over the world. In months and years ahead we would come to hear that same expression of excitement: "Terminator II!" followed by some word that meant "cool" in many languages.

On that day at the academy, nobody asked: "how?", that day the only question was: "when?" When will we have access to all this? And, nobody really cared about the lonely CSU-DSU box on the far corner of the exhibit, flashing green lights and numbers from 1.4 to 1.5 and on occasions dropping to a dangerous 1.2, exactly when we would say: "take a look at these pictures", as the video started to fade into an endless one second pause. Nobody care how many megabytes per second it would take to have "that", or how much it would cost. Nobody asked about the Internet or the

Web, digital video streaming or networked multimedia, there were no such dreams to be had. While we sprinkled our audience with just a few, the approaching tidal wave was not yet in sight.

Soon the Internet would start to become public, the Web would be born, and digital libraries would create e-commerce, e-business and e-money, for so many. We had dreams of making available the masters, the exemplars, the works of arts, the depths of science, the inside of the Smithsonian, the mysteries from across the oceans and from inside our minds. We felt sure that because of technology, as if there were no longer barriers to conquer, rich and poor would benefit in exchange for only the desire to explore and to learn. It felt all very plausible for the CCNY graduates. It made perfect sense to us. We working on e-quality in education. That, was not forthcoming. And today, after a failed e-rate, and new FCC consideration to make Internet calls long distance, there is still much work to do and many barriers yet to conquer.

Today, the Internet and the World Wide Web are formidable forces in business and education. It is estimated that 20% of the population of the US uses the Internet. Outside of North America the numbers decrease dramatically, to 9% in the UK and Germany, 3% in France, to absolutely privileged use elsewhere. Those are very small numbers anyway, if we consider the potential of the Web for making knowledge and information available to people. But, according to our own Department of Education, in the US only 14% of poor and minority classrooms are wired. Thus, diminished resources, lack of educators, and safety in the schools are higher priority issues worldwide than figuring out how to make the Internet and the Web new vehicles for improved learning. More than six years after our ambitious demonstration, those kinds of technologies are not even yet vehicles for access to educational resources.

In places where there is already access to educational resources, we are most likely to expect available wiring and thus access to Internet connectivity. Those who have resources for acquiring the best educational materials are also more likely to be able to afford the subscription fees to Internet Service Providers (ISP). For the vast majority of the K-12 population, in the US and around the world, the wired Internet infrastructure is not yet a reasonable possibility. For example, 65% of the schools in Mexico do not even have a telephone, only 3% of all Africans have access to a telephone. Where access to educational resources is in short supply, so is access to telecommunications. But we all know of distance learning systems that can be deployed to reach out even in the absence of a wired infrastructure and in the absence of other resources.

The solution is in the delivery of broadcast of curriculum. Enhanced with new Digital Broadcast Satellite (DBS) technologies and content delivered in DVB (Digital Video Broadcast) form, universal access to interactive multimedia can be achieved without a wiring and subscription fees. This one-way delivery system is the first far-reaching effort now possible, that can be used to enhance the world's access infrastructure and satisfy the schooling requirements throughout a entire country not just in the cities. The authors have long advocated that we must use technology to enhance access to education as a first priority. The Internet and the Web are

testimony to that, we now have a frame of reference that clarifies concepts there was no language to explain them with in 1992. We experimented with concepts that these tools have now succeeded in explaining to the entire world. But, this still must be realized for the entire world and for all people. Testimony to that is another ambitious experiment of 150 years ago called CCNY. Let's help renew the promise of equity access to education. We, better than anyone, and first, now that it is the only thing that works.

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