

## **Vision Shapes Evolution: Technology in Schools 1975 to the present**

*The Past is Prelude to the Future:*

*In the 1950's a little girl I knew and her friends played a game of travel: If you were going somewhere, what would you take with you? They cut pictures from magazines, used origami to produce little envelopes and packages with strings which they hung on their fingers. That same person as a grown up now carries her work back and forth on a pen drive!*

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As one of the first school leaders in the Commonwealth to acknowledge the promise of technology, I believe that my experiences are benchmarks in the evolution of technology use in our schools. The following events (and commentary) highlight the challenges and lessons of bringing technology into K-12 education.

During the last quarter century (plus a decade!), I came to understand the issues involved in leading change and creating a climate for the adoption of new ideas and approaches in education.

The essential questions about technology integration remain the same today:

- What can teachers teach and students learn which was not possible before or without technology?
- What educational experiences are unavailable in the current school setting which can be accessed through technology?
- How can technology alter the way schools operate to improve student and teacher performance and achievement?

### **The Original Spark**

My initial exposure to the potential of technology in education was as a teacher at Meadowbrook Junior High School in Newton. The school experimented with punch cards to enable students to schedule their “free time” themselves. A couple of the boys in “my house”<sup>1</sup> attempted to “crack the code” by scissoring their own cards to foil the machine! And they succeeded, at least temporarily!!!

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<sup>1</sup> At Meadowbrook Junior High School every teacher in the Continuous Learning Program advised two groups of approximately 15 students each—seventh, eighth and ninth graders— they taught on their academic teams. See Addendum 3.

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But the first significant interaction occurred when I became Principal of Hamilton-Wenham Regional High School. The school had a PDP8 computer used by the math department for record keeping.

To understand the potential of technology I took a course in Basic. I learned two lessons— first that I was going to be a user not a programmer, and more importantly, that using computers for teaching and learning had power and logic.

Immediately, I could see how technology could make certain rote learning activities, such as drill and practice, more palatable and therefore more effective. It also seemed that record keeping could be vastly improved. This was 1975.

As a result, I developed a fanciful vision (see Addendum 2) in order to inspire teachers to play with different uses of technology to teach their subjects. I wanted to encourage the faculty, in a non-threatening manner, to consider using technology, something that was absent from most schools.

As a second step, I required them to attend an afternoon of professional development. In the scheme of things, one afternoon is hardly a breath of air, but it was seminal because after they all grumbled that I had no right to mandate that session, they started to explore using computers in teaching mathematics, as well as writing, science and business education. Afterward many faculty members thanked me for “making us do that.”

They started to create their own visions of how technology could enhance the teaching and learning in their disciplines. As an example of how far we came as a faculty, the staff and I actually dreamed that each student would have a microfiche with examples of all the skills and products he or she developed during high school to show a prospective college or employer, a precursor to today’s electronic portfolios.

### **Engaging Others: Building Momentum for Change**

With that experience, of engaging educators in the use of technology, began the part of my career that I had never anticipated nor prepared for— as an advocate and influence broker. In the first of many such actions, I had to convince the Superintendent and School Committee of the advisability of investing in computers for the high school. I argued that a high school (Hamilton-Wenham Regional High School) with our academic expectations needed technology as a teaching and learning tool.

In 1982, I moved to the Lexington Public Schools. My position as Assistant Superintendent allowed me to direct and influence the school district and community. Lexington had already made its name in technology utilization (a 50 page plan for technology integration and use was evidence of that) and the school district was poised for the next stage when I arrived.

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I assembled a district-wide team to move this agenda forward. The team included:

- the Director of Planning
- the Curriculum Technology Integration Specialist
- the Head of Libraries and Media, and
- the Director of Instructional Technology for the High School.

We met often, and focused on the following areas:

- **Professional Development:** designing and enabling professional education and development for the faculty, including several Expos (exhibitions) invitational to parents and open to the public,

- **Technology Integration:** implementing technology integration initiatives in the schools such as supporting innovative teachers who were using technology to improve their practice and students' learning (we chose one elementary school as a pilot to "stream" the use of technology through the entire system),

- **Local Educational Foundation:** creating a local educational foundation to accept gifts that aligned with the district's technology plan,

- **Outside Support:** writing grants to entice outside financing to supplement the school budget, and

- **Partnerships:** establishing relationships with business and community agencies to support the use of technology in instruction and administration. (One failed effort was to convince a major hardware and software player to develop an application for teaching writing that would instruct and reinforce the mechanics, enabling teachers to concentrate on style, voice, content...)

These are all elements we still consider essential to maintaining meaningful technology integration in schools. In Lexington, the team worked well and very hard, although we did not always agree. One continuing argument was how much planning needed to occur before purchasing.

A second was whether to teach the teachers before we gave them computers, or vice versa. (My position was that without the equipment to practice with, educating teachers was not very effective. Practice as one learns is essential).

A third was whether to provide systemic leadership and mandate district-wide change or allow change to occur through individual teacher leadership and outstanding practice. (This is the question of critical mass which I maintained is necessary for success in leveraging change.)

A fourth was much time could we allow before these changes took effect. (Since I am an impatient person and I felt a sense of urgency, less was more for me.)

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We collaborated with members of the community and kept the School Committee and the community apprised of our successes and challenges. This was a heady time because of the commonality of purpose, the fellowship of a few good people and the support of the larger community. This was also before the days of the platform wars that divided many parents and school people about which computers to buy for schools, Macs or PCs.

Around 1985 I bought my first "256K fat Mac" (Apple's play on the McDonald's hamburger). I was invited to MassCUE's (Massachusetts Computer Using Educators)<sup>2</sup> first annual conference to show off my computer. This was a novelty--a high school principal with a computer who could travel! I packed the precious machine in the special carrying case and drove to a school district in western Massachusetts. This session was truly hands on...a dozen 'pioneers' trying to figure out how this instrument worked and beginning to envision what it could do for schools.

Another example of developing and sustaining momentum comes from the Easton Public Schools in 1989 where as Superintendent, I worked to lead the community to integrate technology in a proactive and deliberate manner. A group of citizens joined us and started a fund raising event: a dinner dance that showed off various cutting edge technology, brought the community together socially and raised significant dollars. The group, called FEEE (Friends of Excellence in Education in Easton) continues successfully today.

### **Developing Leadership: Influencing Policy and Practice**

There were five levels in which one could make a significant contribution to the integration of technology in schools:

- the state
- the educational collaboratives (EDCO<sup>3</sup> was the first and then last one I was involved with)
- the foundation (a local education foundation established in the town, see FEEE above)
- the professional association (MASS<sup>4</sup>...Massachusetts Association of School Superintendents as well as the principals and subject matter associations)
- the local community

After 1989 it became clear that for technology to enable reform in teaching and learning, the best practices of individuals were not sufficient to make a significant difference for all students. Leadership also needed to come from the

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<sup>2</sup> <http://www.masscue.org>

<sup>3</sup> <http://www.edcollab.org>

<sup>4</sup> <http://www.massupt.org/>

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superintendent's and the principals' levels in each community<sup>5</sup>: the use of technology had to be systemic. So with the help of the Executive Director of the Massachusetts Association of School Superintendents (MASS), I started the first Superintendents Technology Task Force (TTF).

In 1991 with essential support from Apple Computer, the TTF mounted the first technology professional development seminar targeted to superintendents in Massachusetts. This Task Force went on to institute and host the annual Superintendents' Technology Leadership Conference and to partner in a major Melinda and Bill Gates Foundation grant. We understood the premise that the superintendent needed to learn with his/her team that would, in turn, support the work back in the district.

Since 1986, as part of the totality of getting support for technology in schools, I have taken every opportunity to either write or speak about the subject—in parent newsletters, newspaper articles, chapters in books, books I edited, television programs and conferences and to serve on commissions and special task forces when the opportunity arose.

Between 1986 and 1989, I was fortunate to be involved with the National Geographic Kids' Network (funded by the National Science Foundation),<sup>6</sup> the first student centered-expert partnered science data collection project using computers. Also during that period, Apple Computer invited me to represent superintendents on a national advisory committee as the company developed technology products for schools. As I explained to anyone who would listen, educators need to lead the design of educational technology, not to be the recipients of non-educators' views of what educators need.

Because of its cost and its still unproven efficacy at the time, technology needed support from many constituents to become an accepted part the fabric of school life. In 1994 EDCO, the educational collaborative to which Acton and Acton-Boxborough belonged, also created a Technology Task Force<sup>7</sup>, at my urging. Its mission was to position the 22 member communities to educate, influence and advocate for technology integration. School Committee members needed professional development to ensure the proper degree of financial and political support. We convinced the EDCO Superintendents to set aside money to create a site for software exploration. During the brief six months it took to explore physical locations in the

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<sup>5</sup> MA is a local control state. Every community makes its own decisions, as long as it adheres to the very general requirements of the Commonwealth.

<sup>6</sup> Pupils Tap Into Study Of World's Acid Rain; Computers Link Their Findings  
The Washington Post | June 9, 1988 | Timothy Flynn |

<sup>7</sup>[http://www.edcollab.org/ComputerCommittee/technology\\_leadership.html...to](http://www.edcollab.org/ComputerCommittee/technology_leadership.html...to)  
see what it looks like now

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districts, the Internet made EDCO's physical location unnecessary for two reasons: software could be accessed through the Internet, and institutions such as MESPA (Massachusetts Elementary School Principals Association)<sup>8</sup> and Lesley University<sup>9</sup> offered those physical sites. This was an important realization--we should not duplicate efforts when resources were scarce. The total change in circumstances within half a year is an example of the many fast track revolutions that challenged the slower pace of schools...

During that time I also participated in ASCD's (Association for Supervision and Curriculum Development)<sup>10</sup> deliberations about the role of technology. I served on both the Strategic Planning and the Technology Futures Commissions in the first half of the 90's with people like Chris Dede<sup>11</sup> and Alan November.<sup>12</sup> ASCD's progression was fairly typical...hesitancy, even reluctance, at first; very small undistinguished steps next; and finally the full utilization of the power and potential of technology, even pioneering.

The opportunity to contribute to an international organization meant that what we were attempting in Massachusetts could be transmitted and validated in other venues. It meant that we could stay on the cutting edge of developments in a field that was constantly and rapidly changing. Still representing the superintendents, I also chaired the Massachusetts Corporation for Educational Telecommunications (MCET) Advisory Board, the cutting edge distance learning provider of both professional development for educators and instructional programs for students. The satellite transmission model was not scalable and its function was replaced by the Internet. The irony of my relationship with the satellite dish that was placed on the roof of Oliver Ames High School (Easton) is that I disregarded advice from a supportive and knowledgeable School Committee member.<sup>13</sup>

When InaBeth Miller,<sup>14</sup> then Executive Director of MCET, called me to ask if I would spend \$5000 to place a dish on the roof of OA in order to receive the vast

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<sup>8</sup> <http://www.mespa.org/mtc/aboutmtc.html>

<sup>9</sup> <http://www.lesley.edu/elis/elisdigitalcollection.html>

<sup>10</sup> <http://www.ascd.org/>

<sup>11</sup> <http://www.gse.harvard.edu/impact/stories/faculty/dede.php>

<sup>12</sup> <http://novemberlearning.com/>

<sup>13</sup> Another irony is that we had tried a similar approach in the Reading Public Schools (in the early 1970s), working with a nearby school district using primitive instruments: a video camera, telephone and fax machine, awkwardly but successfully on a very small scale.

<sup>14</sup> [http://www.celtcorp.com/2nd\\_level.jsp?content=inabeth](http://www.celtcorp.com/2nd_level.jsp?content=inabeth)

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programming being developed and made available through MCET's NSF grant, I asked the School Committee member who knew the most about technology what she thought. Her advice was not to accept the offer. However I decided to disregard her counsel and we procured a satellite dish. I had confidence that with Inabeth in charge, MCET would produce on its promise.

The head end was the high school library. At first a teacher would bring a class to the library and if for some reason—content-based or technically-based—the program was not useful, the teacher lost the entire class period: the time to get to the library, set up, modify if necessary, return to the classroom, etc. This loss of time caused teachers to not want to use the resources. So we set up a classroom in the library...Students were told to go there directly; if the program did not work, the teacher could present a lesson there. This small alteration had a large impact.

Two important local actions occurred in 1994 and 1995 during my Superintendency in the Acton and Acton-Boxborough Schools. The first was the establishment of the Citizens' Technology Advisory Committee (CTAC). This group served to produce a vision (see Addendum 1) that is very close to what we had in 2004, ten years later. Written by John LeBaron<sup>15</sup>, then a parent in Acton, the vision describes students using handheld technology, being networked wirelessly to resources and sites and using speech translation protocols. These students in the vision statement spent fewer than the traditional seven hours a day in school.

The role of vision cannot be underestimated. For educators, and for community members to accept change, they must be able to "see" the potential and contribute to the direction and the outcomes. They must feel compelled to help craft concrete goals and objectives. In addition, CTAC helped to develop our local area network, and offered technical assistance at Town Meetings during our presentations.

The second action was the administration's introduction of PowerPoint to present the school budget and warrant requests at Town Meeting. On the first such occasion, business people came up to us afterwards to compliment us, clearly appreciative (and some somewhat surprised) that school people were working to master the technology.

After that Town Meeting, every presenter at a town policy event used technology to give his or her positions greater clarity and power.<sup>16</sup> Though minor, this move helped in the schools' relationship with the towns.

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<sup>15</sup> <http://paws.wcu.edu/jlebaron/>

<sup>16</sup> One opportunity lost to us in APS/AB during that period, that of participating in the development of the Virtual High School with the Hudson Public Schools, was due to a missed phone call. By the time I called back, a decision had been made about which schools would be involved in the initial exploration.

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### Advocating With Legislators

In 1993 a group of educators and colleagues from the business world created B.E.S.T (Business and Education for Schools and Technology)<sup>17</sup> to educate legislators about the importance of providing financial support to schools for infrastructure and professional development. It seemed to us that key decisions about technology, such as the information superhighway<sup>18</sup>, needed to be made the state or even national level, not at the local level. And the magnitude of the financial support could not come from each individual community, one at a time.

BEST was the first organization in the Commonwealth to use email to disseminate its position on a bill then in the legislature to provide money for school technology. We learned that when business leaders speak loudly about what education needs, especially about technology, the impact is enhanced. Thus, a group that is a joint venture of activists from both schools and business is key in getting buy-in from legislators. BEST continued its important work until 2005 and lies dormant waiting to see if it needed again.

Another key business and education collaboration, organized by MassNetworks<sup>19</sup>, culminated in NetDays, in 1994 and 1995. NetDay brought together business and schools for the purpose of wiring schools in many states. It made visible the needs of the schools and enabled many educators both to understand and help the community understand the dimensions of the enterprise. Massachusetts NetDay also communicated the message that the technology is not enough—it must be complemented by professional development for educators.

Another outcome to which BEST contributed was the allocation of a budget line in the foundation formula for “instructional materials and technology.” That occurred in 2006 and was a breakthrough since it indicated an acceptance that schools need technology in order to function properly in the 21<sup>st</sup> century.

### Institutionalizing the Lessons: Embedding Technology in Instruction

In 1996, the Massachusetts Department of Education developed Project MEET (Massachusetts Empowering Educators Through Technology), with a grant from the federal DOE, based on a three tier model:

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<sup>17</sup> <http://www.best-edtech.org/>

<sup>18</sup> From Wikipedia, the free encyclopedia...The **information superhighway**...was a popular term used through the 1990s to refer to digital communication systems and the internet telecommunications network. It is associated with United States Senator and later Vice-President Al Gore.

<sup>19</sup> <http://www.moveitforward.umb.edu/UMBAboutMNEP.pdf>



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- 1) training teams of teachers in the use of technology as a tool to strengthen curriculum and raise the achievement of all students;
- 2) developing the leadership, curriculum integration and planning skills of specialists to support teachers; and
- 3) identifying technology-related policy issues as well as recommending and advocating for proposed solutions.

This set of commitments reflected my own principles. These ideas were critical to progress in integration, and so I was extremely pleased when Acton and Acton-Boxborough were in the first wave of grant recipients. The award validated our efforts and enabled us to share our vision and our reality.

Virtual Education Space (VES-- now called MassONE),<sup>20</sup> a statewide initiative led by the then DOE, was being built as a portal for students and teachers (and eventually intended for parents as well) in Massachusetts. This was a statewide attempt to help people to think about how to use the Internet for education. It was through this portal that all kinds of resources would be available at no cost to schools: a library of units aligned with standards, record keeping instruments, as well as professional development for teachers. This noble project, which attempted to bring together so many people's dreams about the potential of technology, was imitated by other states and by independent vendors. For Massachusetts, it has progressed and is another example of the challenge of integrating technology in education—sustaining the finances, leadership and a support structure for all stakeholders.

### **A Missing Link: Connecting K to 13+**

It was not until I moved to higher education in 2000 that I realized how tenuous the connection is between K-12 and 13+ (now referred to as PK-16). Teacher preparation institutions, although in some cases quick to realize that pre- and in-service teachers need technology training, do so sometimes without connection to current practice in schools. Eliminating the missing link is the next agenda that needs to be addressed, especially as licensure requirements change in many states. As today's children become adults, they will take technology for granted and expect it to be ubiquitous. They will not need to learn how to use it. What they will need to know, if they become educators, is how to use it for teaching and student learning. That is the function that teacher preparation institutions must accept as part of their obligation in preparing tomorrow's teachers and administrators, and in supporting current professionals who seek advanced knowledge and degrees.

### **The Centrality of Technology Today: Vision Revisited**

In January 2002 the Massachusetts Commissioner of Education, David Driscoll, a former superintendent and active supporter of educational technology, created the

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<sup>20</sup> <http://massone.mass.edu/>

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ETAC (Educational Technology Advisory Council)<sup>21</sup> to advise him and the Board of Education about policy issues and developing standards. I chaired the Council in its first two terms.

Important contributions made by ETAC as a whole and some of its members as individuals over several years:

- a. the establishment of a vision/goal statement<sup>22</sup>
- b. the establishment and maintenance of the Massachusetts STaR Chart (School Technology and Readiness Chart)<sup>23</sup>
- c. the development of the TSAT (Technology Self-Assessment Tool) for Teachers.<sup>24</sup> A parallel tool was developed for administrators (ASAT) but never formally accepted, despite discussions with the appropriate groups.
- d. the development of Technology Literacy Standards and Expectations<sup>25</sup> (in conjunction with the Massachusetts Technology Leadership Council, MassCUE, BATEC, CAST)<sup>26</sup>

And in 2003, the Governor of Massachusetts created a special commission<sup>27</sup> to “review how technology can best be utilized to improve teaching and learning in public education.” He invited educators, business people, representatives of professional associations and legislators to serve together. This group was led by Representative Marie St. Fleur<sup>28</sup> who after that sponsored a one to one computing pilot school in Dorchester.

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<sup>21</sup> <http://www.doe.mass.edu/boe/sac/edtech/>

<sup>22</sup> <http://www.doe.mass.edu/boe/sac/edtech/default.html?section=vision...> the current version is much the same as the original one posted during my tenure.

<sup>23</sup> <http://www.doe.mass.edu/boe/sac/edtech/default.html?section=star>

<sup>24</sup> [http://www.doe.mass.edu/edtech/standards/sa\\_tool.html](http://www.doe.mass.edu/edtech/standards/sa_tool.html)

<sup>25</sup> <http://www.doe.mass.edu/edtech/standards/itstand.pdf>

<sup>26</sup> <http://www.masstlc.org/>, <http://www.batec.org/index.php>,  
<http://www.cast.org/>

<sup>27</sup> <http://www.mass.gov/legis/reports/SpecialCommEducationalTechReport.pdf>

<sup>28</sup> <http://www.mass.gov/legis/member/mps1.htm>

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One of the key questions was whether every student and teacher should have a computing device<sup>29</sup> of his or her own.

These two appointed groups reflect the acceptance by key decision makers that technology does have an important role to play in schools. We have come a very long way in almost thirty years—from one century to another. What was only a dream in the beginning is a reality for many students, their teachers and their schools. But not yet totally realized reality for all. The use of technology for teaching and learning is very inconsistent and uneven across the Commonwealth and the nation.

Technology in schools represents continuing costs, crucial decision-making, and a constantly and rapidly changing technological environment. This evolving environment often leads to such conversations as the one I had on a radio panel in Providence, Rhode Island in 1997 entitled: Does Pentium Inside Our Classrooms Mean Soul, Value & Community Aren't? in which we addressed such questions as:

- Is technology really worth the money?
- Would we be better off spending that money on smaller class sizes?
- What proof do we have that it works?
- Does it isolate children?
- Can they write by hand anymore or do sums in their heads?
- Should a school district buy PC or Mac computers?

These questions will always need to be answered for some set of new decision-makers and for continually changing technologies. The vision written in 1975 and the one from 1994 demonstrate the evolution of possibility and of reality.

And thus the work continues. Vigilance, sustenance, exploration and reinforcement are key to helping our students benefit from the use of technology in their schools for their future. It is clear that soon the technology will be invisible, built into our clothing and our furniture; every child and educator will have constant access. Our conversations can then return to and focus on what is central to schools: student and teacher learning.

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<sup>29</sup> There is still debate about what kind of device is appropriate for use in schools and for what kind of learning activity: smart phone, netbook, laptop, etc.

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## Addendum 1

### 1994 Vision

#### A Quasi-plausible Scenario: Colleen's Challenges, Circa 2001

"Eleventh grader Colleen Boxton winds up an exhausting two hours of research in biotechnology using her personal digital assistant (PDA) connected to her school's information network center. She has been jointly analyzing electronic microscopic images of damaged nerve cells with her mentor lab technologist at the nearby medical center, where she also worked during last summer's four-week break. Through this hand-held PDA, connected to any one of several school access nodes, she not only communicates with her mentor, she often meets face-to-face with her teachers, her peers, and other skilled resource people related to her research project on genetically-engineered treatments for Alzheimer's disease.

Several years ago, Colleen and her 11th and 12th grade peers gave up driving to school every day. It wasn't necessary, except in those instances when she needed face-to-face interaction with her teachers and student colleagues. At other times, she went to the Town's public data center (formerly called "The Library"), the medical center, or some other school-negotiated worksite. While at these locations, or when using her PDA from home, she logged in to the school's main computer which was capable of identifying the location of her PDA regardless of where it was connected. (Colleen's custodial parent has a job in another town, and the school has to know where Colleen is from 7:00 AM to 6:00 PM).

Colleen's PDA is brand new. It has no keyboard (a good thing, too, because Colleen couldn't type her way out of the simplest virtual environment). It also features a flat, fold-out color screen that provides a full twelve inches of viewing space. Every PDA function is launched either by mouse, by voice, by electronic penpad, by image, or by video source. Earlier in the day, working in the video studio, Colleen conducted a live "video-huddle" with Toshiro, Olga, Jean-Claude and Hans, all members of an international work cluster on comparative government approaches to civil rights. Language was no problem. The system-wide translation protocol provided clear, gender-specific voice and text in the language of each user. Trying to achieve intellectual consensus among these folks, however, was quite another challenge!

As she folded up her PDA and placed it in her coat pocket to go home for the day, Colleen's thoughts turned to the evening's activity. Using her own home entertainment device (HED -- basically a consumer-equipped version of her PDA), Colleen decides to "go" to a virtual music-video event. Sure, she knows that virtuality is no substitute for the real thing, but through a virtual experience simulator, Colleen can sample a musical repertoire that she could not afford in live concert. (Moreover, she can artificially configure her evening's virtual date with the precise personal qualities she seeks -- mostly, an abiding intellectual interest in biotechnology and civil rights).

Just as Colleen is plugging in her HED (home entertainment device) to access a commercial "virtual entertainment experience base", an incoming message alert overrides her network

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start-up. "Probably just another telemarketing video-blitz," she fumes. Actually, it turns out to be her Mom, telling her that she'll be home late from work, and wondering if Colleen would prepare the evening meal. Colleen's hopes for the evening fade. This is the real world. Her HED may provide full immersion in musical virtuality, but it will not dice the carrots."

*Dr. John LeBaron, CTAC, 1994 for the Superintendent of Schools' Technology Advisory Council.*

### Addendum 2

#### **1975 Vision**

There was a class of fourth or fifth graders, in a large bright room not unlike the cafeteria of Hamilton-Wenham Regional High school, with many youngsters, each in his or her own environment, that is a movable chair / desk with a gray plastic dome to provide privacy if a student should desire that.

A complex panel composed of a CRT, a keyboard, a tape player, a hollographer, a printer and other peripherals, was perched directly in front of the student.

The teacher had an accompanying "environment" with a few additional buttons:

- if a student misbehaved, a red button could be pressed and the student would fall through the floor into the waiting jaws of a green alligator (padded cloth, of course!);
  
- if the student performed well and deserved a reward, the teacher had a blue button which opened the ceiling to the deluge of chocolate kisses...

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### Addendum 3

*Teaching: Island of Change, Time Magazine, Friday, January 24, 1964*

Most U.S. school systems are so busy corseting the population bulge that much of the reform in U.S. pedagogy is passing them by. Among the happiest exceptions is Newton, Mass., a Boston suburb with a population of 95,600 (up 13,600 since 1950) and a tradition of academic excellence that goes back to 1848, when Horace Mann moved the nation's first normal school there. Newton is probably the most creative school system in the U.S. today—an "island of change," as educators call it, that is rivaled only by the much smaller Winnetka, Ill. (pop. 13,400). "Newton never seems to be afraid of a new idea," says Harvard Education Professor Herold Hunt. "There ought to be a lot more Newtons all over the United States."

Give or take a characteristic, Newton resembles many another well-to-do suburb. It has a small factory district, an average family income of \$14,946, a population roughly divided among Jews, Catholics and Protestants, with about 100 Negro families. Newton's schoolchildren are usually two years ahead of national norms in reading; around 60% go on to four-year colleges. With enrollment (18,000) up 60% since 1950, the town has spent \$19 million to expand a school plant that now includes one junior college, two high schools, five junior highs and 25 grade schools. Annual spending per pupil is a relatively modest \$504.30.

Stop Dropouts. What makes Newton different is its refusal to mistake physical growth for educational progress. The town is proud that it planned its schools so well that it has never had a single day of double sessions, prouder that as a pioneer in spotting potential failures it has cut its dropout rate almost to zero. This concern wins rewards: since 1962, Newton has received more than \$500,000 in foundation grants for refining new ways of teaching everything from nursing to geography to business history. When the Harvard Graduate School of Education tries out a new idea, from team teaching to teacher training, Newton is the school system it turns to first.

Newton pays its school superintendent \$22,000 a year, compared with the mayor's \$15,000, and in Harvard-honed Charles E. Brown, 39, it has one of U.S. education's genuine whiz kids—a reformer who believes that schools themselves must launch curriculum ideas rather than wait for university brain-stormers. Newton is no passive receiver of new courses through the mail. It creates its own, the work of teachers who plunge into ceaseless meetings and study groups as soon as the kids go home in the afternoon.

Stand Back. "You don't work in Newton unless you're a glutton for punishment," says one former teacher, who wishes he had never left. To find such gluttons (top pay: \$11,600), Superintendent Brown raids not only schools across the U.S. but also universities. He takes only the best: "The people who hire teachers have to have the

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courage to turn down those who are not fit." As a result, Newton is brimful of truly concerned teachers. "My most important task," says Brown, "is to find good people, make sure they know their responsibilities, and then get out of their way."

At Hamilton elementary school, for example, Principal Ruth Chadwick and her teachers got fed up a few years ago with the convention of passing or failing small children by grades. "Children's learning is so erratic in the first three years that we shouldn't make a student stay back if he can't read well but does other things well," she says. With Brown's support, Hamilton designed its own version of nongraded classes in the first three primary years. Able tots now start primary work after as little as one term of kindergarten.

For math and reading, Hamilton puts specialist teachers to work on small groups of four and five, using everything from Cuisenaire rods to "independent" study periods. To untutored eyes, the result is confusion—kids moving from group to group without a single neatly defined class. In fact, the system allows a child to race ahead in reading if he can, while crawling in math if he has to, with no stigma attached to his uneven pace. It may baffle parents, but Principal Chadwick says, "You can't measure what this does for teacher enthusiasm."

**Contract Students.** The same goes for "continuous learning" at Meadowbrook Junior High School, where in 1961 teachers rebelled against the "lockstep" track system then dividing pupils into homogeneous groups. Determined to "reach the individual," Meadowbrook's teachers partly copied the Newton high schools "house plan," which divides those big schools into heterogeneous groups of 400 to 500 pupils, each with its own housemaster, faculty, office staff and intramural teams—in effect, creating small schools with "a sense of belonging."

Meadowbrook puts a "house adviser" over every dozen or so students. Students get no letter grades, can partly determine their hours in school, but are each closely guided by the house adviser and five subject advisers. As each term begins, the student signs a "contract" agreeing to "complete the task outlined on the progress form to as high a degree of mastery as I am capable of attaining." Deemed a rousing success so far, the plan has particularly inspired students whose ability is notably high or low, and has led to a revision of the whole curriculum with emphasis on college-style independent study.

Adolescent Anthropologists. Newton's claim to the nation's first complete overhaul of high school social studies is in the hands of Wayne Atree, the imaginative Harvard-trained head of the department at Newton High and a collaborator with "university types" across the country. Drawing on scholars from Harvard, M.I.T. and Amherst, Atree has begun a yeasty approach to Western history built around the concepts of "tradition, continuity, innovation and revolution."

One purpose is to get students thinking anthropologically, to discover the dynamics of human culture, or patterns of adaptation, throughout the world. The three-year course begins, for example, with the problem of how a boy becomes a man—moving

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from the fiction of such writers as James Baldwin and Arthur Miller to a study of Eskimos and Winnebago Indians. It proceeds to urban cultures in the ancient Near East, to the rise and fall of the Roman Empire, to the life of St. Paul, and thence to Luther, seen partly as a son in conflict with his father. Using art to probe the Age of Discovery's new vision of society, the second year starts with perspectivist painting, moves up to the American Revolution. Newton's seniors will focus on the modern U.S. from the viewpoint "what happens when simple tradition falls over the stress of sudden innovation."

Such is the cutting edge of U.S. school reform—the work of teachers who care and are free to care. "We must show teachers that we value their intellectual growth," says Superintendent Brown. "This country has to support the kind of programs necessary to produce first-rate teachers." That Newton has done, setting a pace for schools everywhere—if only they care to follow.

<http://www.time.com/time/magazine/article/0,9171,875676,00.html>