

Innovating with School and Schooling

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The recent passage of the America COMPETES Act has reopened the dialog in Washington on how we will actually go about bringing innovation to our schools and universities. Sometimes lost in the laundry list of funding recommendations for the STEM efforts of the federal agencies, is the fact that the act directs the President to convene a National Science and Technology Summit to examine the health and direction of the U.S. STEM enterprises, and requires a National Academy of Sciences study on barriers to innovation. It also expresses a sense of Congress that each federal research agency should support and promote innovation through funding for high-risk, high-reward research.

This discussion has brought renewed attention to approaches that substantially depart from the traditional systems and architecture of American schools. Washington is looking for innovation wherever it arises. Pouring more effort into frontal assault to bring about systemic change, is losing favor now even among the federal agencies. Based on conversation at several recent meetings, the consensus is that if we are really serious about competitiveness and innovation then we are going to have to get seriously competitive and innovative. Getting federal grant money will require more creative approaches than those that have worked in the past.

A policy group based in Minnesota, with whom many of you may be familiar is now very much involved in this discussion and is successfully advancing the idea of radical alternatives to schools and schooling. Some may remember Ted Kolderie and Joe Graba who spoke to our conference a few years ago. Their group, Education|Evolving, has argued for a national focus on innovating with new and different forms of school/ing. That argument is now being taken very seriously and they have had several meetings in Washington recently. I would urge coalition directors to take a look (because others are) at this most recent paper and to learn more about the things they are now exploring. I believe it is a mistake to associate E|E only with charter schools. The organization has championed some genuinely ground-breaking ideas around the country and helped to proliferate them.

James W. McMurtray

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For today's different needs and different students, traditional high school -- moving students in batches through courses and classes -- almost certainly is obsolete. It is preposterous for this country not to be searching aggressively for different models likely to work better.

The growing sense that knowledge is now the critical economic resources has caused the country to change quite radically the assignment to its schools. A system previously told its job was to give young people the opportunity to learn is now told it must ensure that they learn. This implies quite a different approach to the students. If performance matters then effort matters and if effort matters then motivation matters, and should now be made central. Yet for secondary education, especially, we carry forward almost unquestioned the traditional forms of school and schooling not designed to motivate students -- or teachers; trying to improve performance by pushing ever-harder to standardize and perfect the old technology of teacher-instruction.

We need to search actively for new approaches designed to motivate the young people now in school -- and to attract back those who have left. Going forward, the policy agenda for secondary school needs to focus on innovation.

Happily, dramatic innovation is now possible. We know we are in a revolution in technology when we see cellphones able to access the internet. Many teachers are trying different approaches now in their classrooms. But the dominant strategy for improvement still treats digital electronics as peripheral, useful to support school administration and for data-management. The contrast between the fascination with innovation in most areas of life and the conspicuous disinterest in our discussion about learning is simply stunning.

Events might now permit policymakers to break out of this dead-zone and to develop a strategy that enhances our prospects for improving learning. If indeed the Congress does not act to reauthorize No Child Left Behind until after the 2008 elections, the country will have almost two years to think about the strategy it wishes to pursue. This is an opportunity to consider whether or not it is best to expand -- from elementary to secondary school -- the mandates-and-sanctions approach now in law, or to develop some quite different strategy.

Education|Evolving is convinced the country needs a new and different strategy, that moves directly to innovate with school and schooling. In what follows we explain why, and set out the theory of action -- the strategy and the agenda-- on which we believe the country now needs to proceed.

A National Strategy for 2008 and Beyond

Through the quarter-century since the *Nation At Risk* report the strategy of improvement has been gradually evolving.

Initially after 1983 there was simply the felt need for 'restructuring'. This had no real meaning: It prepared the ground for change but was unspecific both with respect to the institution and with respect to school/ing.

Standards-based systemic reform was designed in 1990 to give substance and direction to the 'restructuring' impulse. It did look toward some change in the traditional concept of school/ing. Its initial expression in the Smith/O'Day paper contemplated a policy framework that would "set the conditions for change to take place". Under these 'conditions' schools could have pedagogies different from those built on the conventional fact-based conceptions of knowledge; could be developing "complex problem-solving and higher-order-thinking skills" to "prepare youth to be skilled, confident learners in later years". But standards-based systemic reform accepted the existing institutional structure of K-12. The improvements depended on the districts' ability to respond. In time policymakers became impatient. They moved to 'require' improvement. In the regulatory effort of *No Child Left Behind* the flexibility originally contemplated was lost.

The chartering idea appeared at almost the same time, enacted by Minnesota's legislature in 1991. An institutional innovation, it did depart from the district arrangement of K-12, introducing the concept of schools being created and run by -- even authorized by -- some entity other than the local board of education. In opening the way for less-regulated and more-autonomous schools chartering made different schools possible. But these enabling laws did not themselves innovate with forms of school/ing. Certainly a 'charter school' (properly, *chartered* school) is not a kind of school in any pedagogical sense.

For more than 15 years these two lines of strategy, standards and chartering, have in their different ways been trying to generate better schools. Some progress has been made. Standards -- supplemented by assessment and by the introduction of some consequences for non-performance -- have begun to move up the proportion of students proficient with basic skills. Chartering, the idea of new-school-creation, has proved unexpectedly popular and has grown now to represent more than 15 per cent of public enrollment in a number of important cities. Like choice it now appears to be a permanent part of the K-12 system.

Yet a general sense of disappointment remains. Partly this is because the curves are so flat; partly it is because of the sense that in our changing world the improvement is outpaced by the need for improvement; education "running faster only to fall further behind", as some say. High school, especially, continues to be a major puzzle, with proficiency low, with gains in the elementary years

falling off in the upper grades and with large differences still in knowledge, skills and graduation rates between racial and ethnic groups.

Different people, different interests, offer different explanations for the slow rate of progress. To some this is a failure of will: We are not serious enough about improvement. Others argue the country is not financing K-12 adequately; others say standards need to be higher and courses harder, as if toughening the traditional were the logical response to obsolescence.

None of these explanations, nor all of them together, proves entirely satisfactory. Ever since the ***Nation At Risk*** report the country has been pressing its schools to do better. Standards and assessment and accountability have been introduced, training has been stepped up, financing has been increased. The 'improvement industry' at work on this is enormous: countless individuals and organizations researching and publishing, speaking and writing papers and books, consulting and conducting professional development, advising and exhorting districts and schools to be better. With all this effort, over so long a period of time why has there not been more success in improving schools and learning?

Probably the answer lies, paradoxically, in the support that K-12 developed with the public, the policymakers and the press over the years in which it served this country so well. This public support gave the institution a sense that it did not need fundamental change; that -- as Albert Shanker used to say -- it could take its customers for granted. And it disposed those outside to hope it would be possible for schools to be better without their having to be different. What resulted was the strategy of trying to get traditional school/ing to perform better.

It is time to consider that the failure to improve learning might lie precisely in this assumption that what we have is a 'performance' problem, to be solved with modifications that improve traditional school/ing. Quite possibly we have, instead, a design problem; a need to find radically different forms of school/ing if we are to reach the new objective of universal achievement and especially if we are to solve the particular challenges associated with high school.

Perhaps it is time to be strategic; to move in-directly, using the open sector created by chartering to produce the innovative schools originally contemplated in systemic reform.

Traditional High School Really Is Obsolete

Focus for a moment on the essential givens of traditional school/ing at the secondary level. [In what follows this paper at some points distinguishes between school and schooling, as these two are defined below. The term school/ing appears when the reference is to both together.]

- School is defined in time, in space and in its form of organization. A traditional school is a building to which children come for certain years of their lives, months of the year, days of the week and hours of the day. There they are grouped by age into 'grades', to be instructed by adults. Schools have been growing larger: The urban high school might have 1,000, 2,000, even 3,000 or more students. The school itself is not a discrete organization but a unit of a larger organization that owns its facility, employs its teachers, provides its revenue and sets out its method of operation. The teachers, unlike professionals in most white-collar occupations, are not in charge of the administrators but work for the administrators.
- Schooling, the process of learning, is conceived of as instruction. Teaching is assumed to produce learning: It is quite common to hear people talk about 'delivering education'. Adolescents study disciplines abstracted from life: history, civics, physics, mathematics. These are divided into courses; courses are taught in classes. It is group work; teachers instructing 25, 30 or more students who move week by week through the subject and chapter by chapter through the text. The idea is to cover and to master the subject matter of the course. The assumption is that all students will know all subjects. Secondary students are tested mainly on their ability to recall factual knowledge. Success is defined as scoring well on tests for that knowledge.

These traditional models reflect the economics of scarcity that until quite recently imposed themselves on all the information industries: film, music, television, books, newspapers and magazines and on enterprises such as retailing. Scale was essential. It was not economically feasible to provide a teacher for every child or to place a library in every home or to erect a high school in every neighborhood. So school developed as a place to which students come to be grouped into classes and instructed together.

This 'batch processing' model has obvious limitations. It requires all students in the class to proceed through the full term and at the same pace, affording little opportunity for those who need more time to take more time and little opportunity for those who could move faster to move faster. In the mixed-ability classroom this confronts the teacher with a difficult, almost impossible, problem.

Nor does traditional school easily permit a student who develops a particular interest to pursue that interest, no matter how strong the motivation or how useful the learning that might result. Conventional school is like a bus rolling along the highway, the tour-guide pointing out interesting and important sights but telling the passengers that, no, we cannot let you get off to explore what's down that side road. Alternatives exist for special-needs students and for 'those not doing well' but not for the mainstream, not for most students.

If achievement requires effort and if effort depends on motivation, then it is vital to move from this old form of school/ing to a form that engages students by offering them the opportunity to personalize their work and to pursue the

interests they develop. Different students learn in different ways. Adapting school/ing to these individual differences could help to hold students in school, to get them to complete school and to get them to do quality work in school.

Chris Anderson described in *The Long Tail* the way the new economics of digital electronics customize the 'information' industries: music, video, film, publishing. The same technology has the potential to get education out of the 'batch processing' model; to make school/ing more motivating for young people already customizing much of their life. A Teacher of the Year in Minnesota caught it perfectly: "Only individualized education can leave no child behind". Turning school/ing from a professional service into a system of 'supported-self-help' would stimulate the takeup of technology. Domestic service evolved from maids and cooks and chauffeurs and gardeners into self-help arrangements in which someone sells you the technology, the know-how, the materials, the training and you put in your own labor. The family farm is a system of supported-self-help. It proved to be a huge market for better practices and for new technology.

Compelling Realities Suggest New Models

It is important for the next stage of the national discussion about improvement to start from certain realities in the current situation.

One: Learning, like teaching, is a voluntary act. We cannot make young people learn well. Success begins with motivation, so school/ing will need to be rebuilt to maximize motivation. Motivation is individual: Young people differ in their backgrounds, interests and aptitudes. An effort to ensure that every child learns will need to adapt to these differences among students.

It is critical in any enterprise to motivate the workers on the job. In education the students are the workers, along with the teachers. Policymakers should arrange school/ing to elicit what Daniel Yankelovich calls "discretionary effort"; that extra effort that workers can make and would make if motivated to do so. At the moment high school is arranged as if to suppress motivation. Five or six courses a day make it almost impossible to develop the close relationship with adults that is important to motivation. And the rigidity of the schedule frustrates students who would like to delve deeper into what they find interesting. Lectures about the importance of doing well in conventional courses are lost on adolescents who are not into consequential behavior or who find traditional schooling boring.

Nor can we make adults teach well, or stay in teaching, or come into teaching at all. To command states to have only highly-qualified teachers will not cause such teachers to appear. The present arrangement is not structured to motivate teachers, just as it is not structured to motivate students. Something in conventional school clearly makes teaching unattractive for far too many good people. Some even of the better-performing states lose half their new teachers in

the first five years, and there are particular shortages in areas like math and science. The insistence that 'professional issues' are reserved to management further discourages teachers' initiative.

Two: The capacity of digital electronics to personalize work now makes it possible to generate a model of school more likely to generate the motivation on which excellence depends. A sense of how rapidly the potential is developing comes through in the 2007 report of the Information Technology & Innovation Foundation:

- For 40 years the computing power of a chip has doubled every 18 months. Moore's Law continues to hold.
- The price of processing power has fallen steadily: \$480 per MIP (million instructions per second) for the Intel 086 in 1978; \$50 per MIP for the Intel 386 in 1985; \$4 per MIP for the Pentium Pro in 1995; \$2 per MIP for the Itanium 2 in 2003.
- The real price of servers fell about 30 per cent *per year* between 1996 and 2001.
- Hard-drive storage capacity has doubled every 19 months and the cost of a stored megabyte of data has fallen 50 per cent *per year*. So the cost of storing one megabyte of information fell dramatically. It was \$5,257 in 1975, 17 cents in 1999, half a cent in 2002 and 1/10th of a cent in 2007.
- There are today about 100 million websites, all adding content and becoming more user-friendly all the time.

Traditional schooling was designed for an era in which students could not access information directly, so needed to be taught by adults who had the knowledge the students did not. This relationship is now changing dramatically, making possible a shift from the old paradigm of schooling as teacher-instruction to a new paradigm of students learning with teachers advising, facilitating, coaching.

It is hard to imagine that these technologies could not make attractive new models available for school/ing, as they have produced new services and products for other areas of modern life. So it is surprising that in the K-12 institution and in our policy discussion there is not more interest in digital electronics beyond replacing the textbook and supporting administration; that there is so little discussion of their potential to change school/ing and so little inclination to see as an asset the capability of young people with these technologies.

Three: Changes in the nature of the work we do as a country and the ever-growing body of knowledge combine now to require what many call "21st Century" skills: the ability to analyze and to solve problems, to comprehend complex situations, to think critically, to be creative, to be adaptable, to be able to work with others -- in person, over the telephone or on the internet -- and to be able to learn and re-learn over a lifetime.

These skills are not those most commonly sought by conventional school, as Lauren Resnick explained in her 1987 presidential address to the American Educational Research Association: "*Learning In School and Out*". Traditional school, as Richard Elmore of Harvard has said, "involves the presentation of factual material to students and assesses learning by testing for discrete, right-or-wrong answers". The reality today is that for most purposes factual material can be obtained just-in-time, and that other skills now need to be acquired in school.

Four: Returns are low from efforts to change existing organizations in more than incremental ways. Faith remains high in 'leadership' as the most important factor in improvement. And those 'in positions of leadership' in the schools continue to affirm their priority for change, their capacity for change and their determination to change -- as if intentions were the decisive factor. But the reality, as Clayton Christensen has shown in *The Innovator's Dilemma*, is that the culture, priorities and processes inside any organization severely constrain its ability to generate significantly different models of operation.

Good leaders can make the traditional model work better. But the existing schools and districts are unlikely to generate the radically different models required by the assignment now to educate all students. For this the important leaders are those in state policy positions who enact the laws that create the platform on which innovative schools can be built.

Five: The traditional model of school and schooling might not be sustainable economically. It is unclear that even strenuous efforts to secure 'adequate' financing -- from the voters directly or from the legislatures (if necessary, with help from the courts) -- can maintain the present heavily-labor-intensive operation. Those closest to the operating system are conscious how hard it is to raise revenues enough and quickly enough to maintain the existing program. Pension obligations are a growing concern. The risk is that the districts' educational program will be reduced even as taxes rise, trapping educators and policymakers in an unending cycle of less for more.

Education depends on appropriations and on tax increases voted politically. To increase its share of revenues it would have to compete against private programs that simply send their bill to the American economy for payment and against public programs financed as entitlements. Education is particularly at risk from the prospect that the political process will soon rearrange the financing of medical/hospital services to permit patients to have every procedure they want to have, to permit physicians and hospitals to claim reimbursement for every procedure they want to perform and to create a market for every new device that manufacturers want to develop.

Ways exist to arrange school and schooling to use resources more productively, slowing the increase in costs and improving achievement. We could introduce these changes if we wished. But there is today no serious productivity agenda visible for K-12 -- and almost no serious discussion about its absence.

Six: The institutional capacity now exists for the country to generate innovative and even radically different forms of school and schooling. When systemic reform was conceived there was no reason to think that a new-schools sector would be available, so the strategy not surprisingly continued as an effort to improve, to transform, existing schools. Today the chartering laws in some 40 states provide a new organizational space conducive to innovation. Though the states need to improve these laws the 'open sector' is gradually, steadily, expanding.

This sector is commonly perceived in terms of its operating schools, with 'charter(ed) schools' thought of as some kind of school. Not so: Chartering is simply the platform on which schools of various kinds are built. Policymakers need to see chartering in terms of its potential to permit innovation with school/ing, and as a strategy superior to the one limited to trying to transform existing schools.

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These realities -- which demand to be considered -- combine to argue powerfully for an effort to develop new forms of school and schooling and for a different method by which to introduce change and improvement into the K-12 system.

So fundamental a shift in strategy will unsettle many people. Policymakers will need a way to deal with the issues and with the controversy it creates, if they are to move successfully with the different approach now required for improvement. It seems especially important to do three things.

1. Set High Standards for the 'Different' Schools

The call for a major effort to innovate with school/ing is serious about learning needing to be of high quality. Students will need to do well, be competent. School will need to be demanding -- though hopefully not "harsh, severe and austere" (which is the dictionary definition of 'rigorous'). Reading, writing and a sense for numbers will be critical. The expectations and the standards, in other words, can be high. A sound foundation of basics, early, will help ensure success later.

That said -- and we hope accepted -- it needs to be clear that standards and assessments in the innovative schools will be different from the traditional just as the school/ing will be different from the traditional. Clearly we are talking about a different conception of 'being educated'. This is necessary: The country cannot do 21st-century work with 19th-century tools. So we have a systemic change: The different requirements for learning imply and require a form of school/ing designed to produce the new skills desired, and assessments able to determine whether those skills have been developed. Standards and assessments will include but will also move beyond the requirement for students to read well and to write well. What gets tested, as they say, gets taught. The risk is that traditional assessment would tend to preserve traditional school/ing.

New and different assessments appropriate to the different kinds of school/ing are just beginning to be thought about. We cannot see at this point what these will look like, any more than we can see at this point what the different school/ing itself will look like. It will take work to develop these new assessments. Both the national government and the foundations could usefully help.

Any discussion that suggests modifying standards and assessment immediately surfaces the underlying concerns: that only traditional school results in real learning and that only traditional assessment measures real learning; that anything not 'real school' -- particularly if designed to interest and to motivate students -- is bound to be 'soft' and therefore not quality. There is a concern that any move away from the current assessments would make it impossible to quantify student performance, making it then impossible to know 'what works' and to hold schools accountable. Sometimes implicit in all this is a suggestion that any move away from the traditional is an effort to evade standards and to escape the obligation in law to disclose and to improve the performance of racial and other sub-groups.

We can share the concern for accountability and for equity, and understand how strongly these concerns are held. But it is often good to challenge a prevailing orthodoxy. There is something strange about a discussion of goals disconnected from a discussion about how to reach those goals; about the tendency to assert objectives as if these were accomplished by being asserted. Laws, schools and programs are named for the results intended: Children Achieving, Ready for K, Achievement Plus, *No Child Left Behind*; on and on. Promises escalate: More students will master math and science, the achievement gap will close, all students will be college-ready, proficient in all subjects. The implication is that subjects are learned because they are offered, objectives reached because they are proclaimed and proficiency achieved because it is insisted-on.

It would be good for the discussion to focus somewhat more on how objectives can realistically be reached; how performance can be raised above its depressingly low levels. Success requires a method. The tendency in political life is to avoid questions of method: The 'How' is difficult to explain and is certain to create controversy with the interest groups, so policymakers find it safer to deplore problems and to proclaim goals. And there are, to be sure, some issues about goals. But once the goals are agreed, the question has to be: 'How?' The critical question is always 'How?'. The national discussion needs to think imaginatively about method; which today means, about changing school/ing.

Down to the present the discussion has not really contemplated changing the model of school and schooling, so strong has been the idea of getting the traditional model to do better. But even backed up by 'accountability' this strategy is doubtful. Mandates and accountability create a reason for districts and schools to improve, but threatening consequences for non-performance does not by itself improve performance. It is time now -- necessary now and possible now -- to broaden the strategy by innovating with school and schooling.

2. Clarify That Schooling Can Truly Be Different

People will wonder, will ask, what are the 'different' possible models of school and schooling. In the nature of the process, no one can know in advance what different models of school and schooling will appear as innovation begins. But we can see a ways into the likely future. We do know we will be talking about more than incremental changes on the traditional model. We can be fairly certain that we will be seeing changes significantly more fundamental than appear today, when the term 'innovation' is broadly applied to changes and improvements generally.

We can sense the potential by contrasting the new paradigm with the old.

The Past

Transform existing schools
Larger schools
'Delivering education'
Read books; listen to talk
Time-bound/place-bound
Technology as textbook
Groups, classes
Time is fixed
Standardization
Cover material
Who and What
Know things
Rigor
Multiple-choice tests
Testing for accountability
"Make 'em"
Instructors
Teachers serve administrators
Administrative management
Adult interests dominate

The Future

Create new schools
Smaller schools
Students learning
Explore the Web
Any time/any place
Technology for research
Individualized
Time is variable
Customization
Understand key ideas
Why and How
Apply knowledge
Relevance
Written/oral demonstrations
Testing for diagnosis
"Motivate 'em"
Advisers
Administrators serve teachers
Professional partnership
Student interests dominate

We see this when reporters visit schools: Almost always they write about kids doing things; seldom about the teacher's lecture. It is possible also to look at the innovations that have appeared in the chartered-schools sector of public education even in the short time since these laws were enacted. Many of these are not well known: Research has tended to ignore individual cases, preferring to generalize about 'most'; about aggregates, averages and trends. But already certain innovations are visible, both with school and with schooling.

With School

- Place -- School does not have to be a fixed place. There are interesting combinations of learning in school, at home, online and out in the community. Some schooling might be work-based, with students earning both real money and real academic credit for what they do and what they learn. The online/'virtual' school is a model now growing rapidly: It has huge positive implications for public education in rural America; perhaps for urban America as well.
- Time -- Students do not have to come to school on a fixed schedule. Innovative schools are already testing flexible schedules for the day and for the year. The 'virtual' school, for example, tends to be an 'anytime' school.
- Scope -- Some new schools are breaking the 'K to 12' framework. We see some that bridge "age 3 to grade 3" with a continuous, coherent literacy program. And we see high school students now overlapping their junior and senior years with the first two years of college.
- Size -- Most conspicuous, perhaps, is a reduction in the size of school; of high school especially. Traditional high schools -- sometimes with 3,000 students in three grades, moving from class to class from hour to hour -- are almost designed to keep students and teachers from knowing each other well. Smaller size can also be associated with 'sustainability'. We now see economically and educationally successful secondary schools that, using different forms of schooling, are educationally and economically viable at very small scale.
- Organization and management -- Schools can be relatively autonomous, rather than units of a consolidated organization. And can be set up so that teaching is no longer, as some principals say in candid moments, "essentially a dead-end job". In the boss/worker arrangement, where the 'principal' is presumed to be the professional (instructional) leader, the teachers are poorly motivated to accept responsibility for school and student performance. Organized as a partnership rather than on the old labor/management model, these schools provide teachers collectively the professional responsibility for learning in the school. Teachers can be innovators. In schools where the teachers set up both the schooling and the administration we see quite remarkable changes in attitudes and in behavior. Importantly, this can be done (as it is in Milwaukee) within the union framework.

With Schooling

- The program of study -- Schooling can be arranged so that secondary students, too, work with a single teacher -- all day and from year to year. Schooling can be inter-disciplinary and project-based, so students study and come to understand civics and physics and art in real life rather than as

abstract disciplines. In some schools understanding might be achieved by conveying the half-dozen essential ideas of a field rather than by 'covering the material' in the traditional way. Schools might let students specialize early; challenging the idea that every student must master every subject.

- Technology -- Properly, technology is "the practical application of knowledge"; among other things, the way capital and labor are combined. In traditional schooling the technology is teacher-instruction: Labor, mainly the teachers', is intensive; capital is minimal. The conventional way to add capital (computers, say) is in support of existing practice: The teacher is given a laptop so s/he can access student records in the evening; students are given laptops so they can take notes or work problems. Used simply for taking notes and reading text a laptop might well not 'improve achievement' or reduce cost. But used to do serious, high-quality research on the Web as a library the laptop is something else again.

Such changes in roles have significant potential to improve productivity. Research some years ago at Stanford found, for example, peer teaching to be both the least costly and the most effective of four 'reform' alternatives. Such changes can produce a form of school/ing that upgrades teachers' work from presenting-material to planning-advising-and-evaluating while significantly increasing student labor (which, note, we do not compensate).

- Pace -- Where work is individualized we might see schools that let students 'test out' of subjects when they can demonstrate through some appropriate assessment that they know and can do what the standards say they should know and be able to do. They would not have to finish the course, perhaps not even have to take the course.

The question is not so much what the new forms of school/ing will be: No one can be certain what will emerge as innovation proceeds. Nor would it be a good idea for policymakers to decide in advance what 'the new model' ought to be. The strategic question is how to generate innovation, given the uncertainties and the controversies that such a strategy will involve.

3. Move Change Along Two Parallel Paths

It would not make sense to try to innovate everywhere, all at once. So the strategy going forward should split along two lines:

- State policymakers will arrange for the principal effort to develop innovative, breakthrough models to be made in their new-schools sector of public education. The -- perhaps disruptive -- innovations will appear and be perfected there.

- In the district sector of public education, concurrently, state policy will do all that is possible to continue 'sustaining improvement' in the existing schools, increasing the capacity and the motivation of the districts to pick up the innovations appearing elsewhere and encouraging them to create new schools if they will.

A strategy that separates the two different efforts will be more effective and therefore more realistic than an across-the-board effort; will reduce the controversy that comes with change.

1. Keep traditional school for those who prefer it

Policymakers should not try to impose change on those who prefer traditional school. It is not a good idea to 'order' people to change their behavior.

- Many people do not want school/ing to be different. Adults who have known only the conventional classroom are likely to be uncomfortable with an effort to innovate with school/ing. People are nostalgic about the good schools they remember; are often loyal to the district model whether its schools work for today's students or not. Many are apprehensive about letting students loose into cyberspace. Some resistance results from simple inertia: 'This is the way we've always done it'. There are powerful interests protective of the existing ways. And always there is misoneism, the fear and dislike of any change.
- Some will insist that school/ing does not need to be different. Most of those most influential in the policy discussion themselves did well in school; their children did well, most of the people they know did well. There is an impulse to feel that 'school' must be all right; that if it does not work for certain students then perhaps those students are not trying hard enough; that it is the student's responsibility, after all, to be motivated. There is a persistent hope, too, that incremental improvement will be enough; that it will not be necessary to face the rigors of radical and disruptive change.

But these arguments against innovation will not stand scrutiny. After years in which large numbers of young people have not learned well in conventional school and after years spent working to improve the schools we have, the burden of proof today is clearly on those who would keep trying with the traditional model, arguing endlessly for loyal support and additional resources.

No one can be certain that a strategy of "more of the same, done better" would work; that making schooling more rigorous would not simply drive up the quit-rate. And a one-bet strategy -- hoping to get students to learn in the existing traditional schools, working just with the conventional model of schooling -- would be a risk. It would be an unnecessary risk, since it is clearly possible also to be trying different approaches in new schools. And since it is an unnecessary risk

it is not an acceptable risk for political leadership to be taking with other people's children.

The split approach should be easier politically. Assured the kind of school/ing they prefer, traditionalists can hopefully be dissuaded from opposing the innovative forms of school/ing necessary for those now not doing well in conventional school.

Over time more and more people are usually willing to try what they initially found uncomfortable. So in most sectors of our economy and society we see major change coming not so much through transformation as gradually through replacement. Typewriters did not turn into PCs; typewriters were replaced by PCs. As this happens in education, new and different schools will gradually replace traditional schools. The new strategy will permit this transition to occur as individuals and organizations decide they are ready.

2. Free the innovators to try different models

With the district sector encouraged to make the incremental improvements it can, the way will be open to stimulate innovation in the new-schools sector.

The idea is simply to maximize the opportunity for educators and others to try new approaches to school and schooling they think will work better. There are obstacles in the way of innovation, as everyone knows. But public education also offers entrepreneurs a field of activity in which the law requires the customers to use the service and in which there is universal third-party payment, no co-pays and no deductibles. So it should not require producer-side subsidies to corporations or others to come up with new models of school.

The state and national governments will need to switch roles. Public education exists in state law: It is for the states to shape the new sector in which innovation can flourish. The national government must influence states and districts indirectly. Its impulse has been to tie requirements onto its grants-in-aid. A better role is to set goals, to monitor progress and to encourage innovation by ensuring that its own regulations do not create barriers for states that want to move.

This produces the following six-point agenda for the policy discussion:

- 1) The first rule of winning being not to lose, the Congress should leave the reauthorization of *No Child Left Behind* until 2009 -- as it now seems likely to do. In any event it should not extend to high school the effort to secure improvement through regulation. To do so would lock in the form of school/ing that now needs to be changed. The states need the opportunity to begin the program of innovation that will tell us more about 'what works' for secondary school. It would have made no sense in 1967 to have said that research showed what computer works for one and all. The sound course then is the best course today: Let people try things; let innovation run.

- 2) To maximize innovation in the new sector of public education the states should make certain that their laws (a) permit the growth and development of new schools, (b) provide for multiple authorizers, (c) provide financial assistance for the start-up of schools and (d) help new schools to finance their operations and facilities at the level states finance district public schools. Also, because oversight requires a mindset congenial to new models of school/ing, the states should arrange for the new innovative sector to be overseen by some entity other than the state department of education.
- 3) The national government should encourage this state lawmaking. And can: Nothing requires the President to make proposals only to the Congress or prohibits the President from making proposals to the legislatures of the states. Washington should see this as a problem in diplomacy; can lobby the states to create the open sector and assist them with policy support and with financing.
- 4) Leave it open for inventors and entrepreneurs to design different models of school. Resist the temptation -- and the inevitable pressures -- to set up a big program of producer-side subsidies for people to design new schools. Simply expand the opportunity for change. Do not try to 'pick winners'. It could be most interesting to see what would develop where the teachers collegially are responsible both for the design of the school and for its success.
- 5) Have patience: We are only at the beginning of the effort to let into school/ing the new technologies that will in time transform it. It is too early to limit ourselves to 'scaling up' what currently seem successful models. Innovation comes before replication: Think about the automobile and aviation industries; trying lots of models; over time sorting out those that performed better, gradually consolidating their manufacturers. Inevitably it will be a process of trial-and-error. It will take time to sort out the unsuccessful efforts and to see what new models do work well. Recognize: It will not be a problem for more schools to fail if more students individually succeed.
- 6) To scale up improvement the states should rearrange the district sector in ways that increase the prospects for the new models to scale up there. Some replication can come with the growth of the chartered sector. But new schools are created only slowly and the first priority for the chartered sector is, anyway, innovation. Much of the replication will need to come in district public education. Since innovation always spreads faster between organizations than within them, state policy should, strategically, break down the district sector. In large cities this might mean having several organizations offering public education: Nothing compels a state to have only a single organization in a city no matter how large. Or it might mean the state intervening with a restructuring that would make it possible for single board to run in tandem the old schools and the new schools. Or it might mean doing a divestiture, giving individual schools the autonomy needed to adopt new models.

The Challenge

Analysts define a system as 'a collection of interacting parts': Change one important part and the other parts adjust in response. The country's decision to switch the mission from access to achievement dramatically changed a critical 'part' of the K-12 system; set off the process of systemic change that is remaking the institution. Achievement required standards, and assessment, and both have appeared. Accountability was implied, and has appeared. And when achievement is imperative it becomes necessary to find more effective forms of school/ing. The emphasis on 'every child' implies innovation away from the traditional batch-processing model; implies the individualization and personalization of school/ing. It means that school must accept, too, the responsibility for motivating those who appear; The imperative for learning means the end of the old belief that it is the student's responsibility to come motivated to learn. Quite possibly, as the process of systemic change rolls on, this imperative for innovation will cause a restructuring of district organization.

All this challenges the culture of the institution, creates a challenge for educators. The tradition in K-12 has been to protect the traditional arrangements against outside pressures for change. That resistance will no longer serve. Were public education to try to stop the systemic change under way, the new models would appear outside it. A look at the current scene makes clear how simply an alternative to formal school can be created. Those without resources would be disadvantaged, but families and young people with resources could find ways to learn, opportunities to demonstrate competence and routes into adult life that do not involve and require the high-school diploma. Were public education, instead, to accept and to speed the process of innovation K-12 would become a very different institution. But that change would ensure it will survive and prosper.

But the challenge is also for policymakers. Their decision to change the mission from access to achievement imposes an obligation on state leadership as well. The state is the architect of the K-12 institution, and in fairness to the educators and in the state's own interest governors and legislators need to create a self-improving system structured to maximize motivation and to encourage innovation. All kinds of people have a vision of better school/ing The challenge for policy is to develop a strategy able to realize the vision.

It could be as simple as easing up on the impulse to change everybody's behavior, all schools, everywhere and all at once. The country might do better with a strategy that concentrates on finding new forms of school/ing and making these new forms available to the schools, teachers, students and parents who are ready for change, figuring -- reasonably -- that others will come along, gradually, in time.

TK/Rev 8-31-07