P–16: From Commuter Local to Transcontinental Express

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Abstract

The P–16 movement has spread to about half of the states and has begun to play a major role in the nation's education reform efforts. The author describes how the movement originated and how it has evolved up to the present. He then presents some of the major issues that are likely to be on the movement's agenda and before metropolitan universities over the next few years.

During the 1980s, standards-based reform of our elementary and secondary school systems began to acquire momentum in several places across the nation. This was triggered in part by the famous 1982 national report, "A Nation at Risk," which described a failing elementary and secondary education enterprise that literally threatened the future of our nation. In response, some states and school districts embraced the idea that part of the solution to this problem lay in the clear articulation of expectations for students—what they should know and be able to do—accompanied by assessment of student performance (i.e., testing) to determine whether they actually met the standards. In a second use of the word "standard," one often confused with the first, the tests are frequently *standardized* tests, i.e., common tests taken by many students in many different schools so that their performances, and their schools' performance, can be compared state-wide, or even nationally.

The basic principle here is rather compelling, indeed almost unarguable. If our society is spending billions of dollars on an enterprise, then we ought to have a clear common understanding of what that enterprise is expected to accomplish, and to make reasonable efforts to discover if it is in fact accomplishing what we expect. If it is not, then we ought to figure out why not, and fix it so it does!

Compelling and unarguable though this principle may be, the standards-based school reform movement has nevertheless encountered one political storm after another. There are those who believe that our nation's constitutional reservation to the states of responsibility for education means that every state (not to mention every district and every school) is entitled to invent its own standards. There are those who fear that any attempt to assess the performance of students or schools will yield information that might be misused if it fell into "the wrong hands." There are those who argue that teaching students what they need to know to meet standards and pass relevant tests is "teaching to the test" and a waste of time and money. And there are continuing arguments about what the standards are, or ought to be, and about the validity of the instruments used to assess performance against them.

Such arguments continue, but the standards-based reform movement has acquired momentum in one state after another. With the passage of the latest reauthorization of the federal Elementary and Secondary Education Act (ESEA), the movement has taken on a national character, under the slogan "No Child Left Behind." The ESEA mandates annual testing of students in grades three through eight, and requires states to report annually on the status of their teacher preparation and certification programs.

In the mid-nineties, there arose in a few states so-called K–16 or P–16 initiatives. These are based on the premise that the entire education enterprise, from kindergarten ("K") or pre-kindergarten ("P") through college, ought to function as a single integrated system composed of strongly-interacting components, not as a set of weakly-interacting and relatively independent parts, i.e., elementary schools, middle schools, high schools, and colleges and universities. In this view, each component has a role and a responsibility in addressing deficiencies in any other component. For example, student performance exit standards at any component level should be carefully aligned and linked to entrance standards at the next level. And, in light of the growing evidence that teacher performance is the most important single factor in determining student performance, the institutions that educate and train teachers (colleges and universities) must acknowledge and accept a major part of the responsibility for ensuring that our students are taught by qualified teachers at all levels of the system.

Over the past half-dozen years the P–16 movement has also acquired substantial momentum. About half of the 50 states now have their own versions of such a movement, and it is increasingly intertwined with each state's standards-based school reform movement. It can fairly be said that these twin movements have passed beyond the stage of "commuter locals" to become part of a "transcontinental express." The train is moving and picking up speed. There is a very long way to go before we reach the national goal of an education system that brings every student to the level of academic performance demanded by our complex and evolving society and economy, one that "leaves no child behind." But we are on the right track, headed in the right direction.

The purpose of this article is to review the creation and development of the P–16 movement, to describe its present status, and to speculate on its likely evolution during the next few years.

How We Got Here in Maryland

Every state's P–16 initiative began in its own way, in that state's unique circumstances. I am most familiar with the Maryland example, and so will emphasize it here.

Maryland's K–16 Partnership started in 1995, when Nancy Grasmick, State Superintendent of Education, Pat Florestano, Secretary of Higher Education and CEO of Maryland's higher education coordinating commission, and I, as Chancellor of the University System of Maryland, agreed to form the "Maryland Partnership for

Teaching and Learning K–16." (We began with "K" and continue to use it.) Our purpose, consistent with the basic premise enunciated above, was to bring to bear the human and financial resources of all three agencies on the major education issues facing our state. The Partnership is led by a K–16 Council, co-chaired by the CEOs of the three statewide education agencies and composed of representatives of each agency and its governing board, plus representatives of Maryland's community colleges, private colleges, business community, and, not least, teachers, the latter in the person of the current Maryland Teacher of the Year, ex officio.

We have focused on two primary issues. The first is our need to enhance effective access to post-secondary education for all Maryland students, especially disadvantaged and minority students, by closing the K–12 performance gaps among student groups and aligning high school expectations with college admission standards in order to effect a smooth and seamless transition from high school to college (and/or career) for every Maryland high school graduate. The second is to redesign our education and training programs for candidate and current teachers to ensure that every K–12 classroom has a fully qualified and effective teacher.

Maryland has been engaged in standards-based school reform for well over a decade. The most prominent feature of that effort to date has been the development and implementation of the Maryland School Performance Assessment Program (MSPAP). MSPAP was based on a set of sophisticated examinations taken annually by all students in the third, fifth, and eighth grades. These examinations were designed to assess school performance, not individual student performance. The results are publicly reported and have consequences, including financial rewards for schools that show improved performance and a mandatory "reconstitution" process for schools that consistently underperform.

MSPAP has not been without controversy, to put it mildly. There was substantial opposition from schools and parents when it was instituted. This has lessened over the years as it has become apparent that the program provides a powerful diagnostic tool for school leaders and teachers, many of whom have moved from griping to changing what they do in the classroom in order to better prepare their students for the exams. One of the continuing criticisms of the MSPAP is that the exams do not give parents and students something they evidently ardently desire, measures of individual student performance. The requirement of the federal ESEA for annual testing of students in grades three through eight has led to the need to revamp Maryland's K–8 testing system. The dreaded MSPAP will be replaced, a prospect that has caused joy in some quarters.

When the Maryland K–16 Partnership was established, the Maryland State Department of Education was developing a high school student performance assessment system, based on a defined set of Core Learning Goals. The system entails about a dozen end-of-course exams that will be taken by students after they have completed the relevant course(s). It is currently being pilot tested, with the intent of implementing it statewide for the high school entering class of Fall 2003. It will be a high-stakes system in that

the consequences for individual students at high school graduation will be significant, though the precise nature of those consequences has yet to be finally decided by the State Board of Education.

The design of this Maryland high school assessment system has been substantially influenced by the K–16 Partnership. The Partnership has brought together working groups composed of teachers, college faculty, and others from both sides of the secondary/post-secondary divide to help with the development of the system. One of the principal objectives of this joint effort has been to ensure that the resulting high school assessment system is aligned with college admission standards. The University System of Maryland has committed itself to using the high school assessment results as major factors in admission decisions for Maryland high school graduates. My personal hope is that it will eventually supplant the use of the SAT in such decisions.

Our K–16 Partnership recognizes the importance of our two-year community colleges in Maryland's education system. Another major effort of the Partnership has thus been to engage faculty from both two-year and four-year institutions in a process for developing clear and consistent common expectations for undergraduate general education, beginning with English Composition and Mathematics. In a related effort, two clusters of two- and four-year college faculty are participating in the Quality in Undergraduate Education (QUE) Initiative, which is setting standards and performance measures for undergraduate students in history, English, mathematics, biology, and chemistry.

Finally, the Maryland K–16 Partnership has devoted attention to all the issues surrounding teachers. These include those associated with the theme of this issue of *Metropolitan Universities*, "Partnerships for Teacher Quality." Like all states, Maryland confronts unacceptable deficiencies in the quality of its teacher corps. Like many states, Maryland faces equally unacceptable deficiencies in the quantity of teachers available to its schools. These two characteristics, quality and quantity, are intimately linked, and their deficiencies can only be rectified by concerted, persistent action on the part of the K–16 Partnership. The colleges and universities that prepare new teachers and help enhance the capabilities of teachers already in service in our schools, and the schools that are their professional environments, must work together to meet that challenge.

Beginning in 1995, Maryland's colleges and departments of education have been engaged in a redesign of teacher education. We have been steadily increasing the use of professional development schools in our teacher education programs. The eight institutions of the University System of Maryland that have traditional schools of education have been joined by a ninth, the University of Maryland University College, which has begun to offer specialized degree programs for teachers available entirely on the World Wide Web. Some of our schools are successfully increasing their enrollments in specialty areas where severe shortages exist. Our deans of education meet regularly to strategize together, and they meet with school superintendents under

the auspices of the K–16 Partnership, but it must be said that we have just begun to address teacher-related issues in the breadth and depth that they require.

One aspect of Maryland's K–16 Partnership deserves further explanation. As noted above, it began as a voluntary effort of the CEOs of the three statewide education agencies. It has accomplished a good deal over the past seven years, in large part, we believe, because of the enthusiasm and personal commitment of those CEOs. As time passes, however, the leadership cadre inevitably changes. Several years ago, Pat Florestano was succeeded as Secretary of Higher Education by Karen Johnson. This year I retired as Chancellor of the University System of Maryland. Nancy Grasmick continues as State Superintendent of Education, having served under two governors for more than a decade. Next January, we will have a new governor and a new legislature. Accordingly, last spring we three signed a joint memorandum of understanding expressing the continuing commitment of our agencies to the K–16 Partnership. This memorandum was intended to add a modicum of formal institutional permanence to the Partnership. It was encouraged by several legislative leaders to complement their recognition of the Partnership in legislation passed last spring. We deliberately stopped short of seeking formal legislative or gubernatorial establishment of the Partnership because we feared the natural tendency of bodies so established to become overly bureaucratic and, sometimes, ineffective. We chose to trust in the continuing enthusiasm generated by the K–16 Partnership concept, which we believe is now substantially, if not universally, pervasive in Maryland; whether we were right only time will tell.

It is important, however, to understand that the Maryland way is not the only way to do this. Georgia, like Maryland, was one of the earliest states to create a P–16 Partnership. It did so by gubernatorial fiat and appointment, and it has been every bit as successful as Maryland. Every state has to choose its own way to structure its P–16 effort. My advice is simply, "Do it your own way—but do it!"

How We Got Here Nationally

Quite coincidentally, not long after we initiated the Maryland K–16 Partnership I was elected President of the National Association of System Heads (NASH). For those unfamiliar with it, I should explain that NASH might be supposed to be just another of that multitude of education associations that help make Washington, DC the home of alphabet soup. But it is an association with a difference. Unlike almost all others, it has no offices, no permanent mailing address or phone number, and not much of a bank account. Its one staff member also has a real daytime job. I have often referred to it as a "stealth association" because it makes no attempt to achieve visibility. Its members rather like it that way. (It does have a Web site, however, whose detection I leave as an exercise for the reader.)

NASH has existed since the early seventies, and for most of its life has served just one very important purpose—to serve as something functionally similar to Alcoholics Anonymous for that small beleaguered band of individuals who serve as CEOs of the

nation's university systems. There are just over fifty of them in thirty-eight states and the Commonwealth of Puerto Rico. (NASH is thus a more exclusive club than the United States Senate.) These systems enroll the majority of students in American public universities, and, for present purposes, it is useful to note that they educate and train most of the nation's teachers.

When I became President of NASH, it occurred to me that it might be the ideal organization to catalyze the propagation of the P–16 gospel. Why might that be desirable? Here is the argument, or, rather, the two arguments.

First, there is the matter of scale. Most of us in higher education are used to hearing about wonderful ideas that, with the help of a modest grant from a foundation or the government, are advertised as inspiring demonstration projects that will serve as "national models for all to emulate." In education, there have been many such projects involving one professor, one graduate student, and one school. The trouble is, the resulting model rarely seems to attract much emulation, either locally or nationally.

The challenges we confront in education are obviously of enormous scope. They are national issues, and the way that we have organized education, the largest scale on which most of them can be practically addressed is the state scale. It seems to me self-evident that unless we can tackle these challenges on the state level, we are unlikely to make much real progress. So how might we construct an effective partnership among the various components of the education system at a state level? Well, in those states that have at least one university system, we can do it by starting at the top and bringing together the state K–12 CEO, the CEO(s) of the state university system(s), and, where relevant, the state higher education executive officer (SHEEO). That is what happened in Maryland and Georgia, and it ought to work in other states as well. It may be more difficult in states that have more than one university system (e.g., Texas has six), but it ought to work. It might be much more difficult in states that have no university system, but that is a challenge for another day.

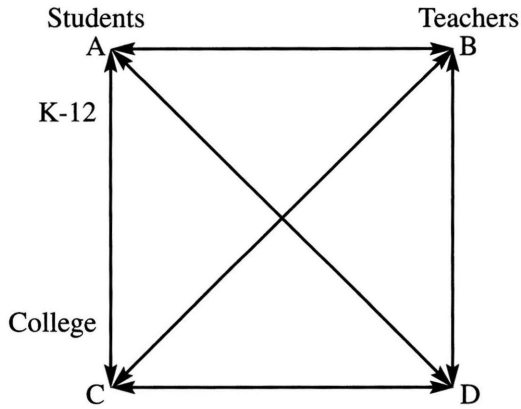
Second, there is the need to accommodate to political volatility in education systems. Education is undoubtedly one of the most politicized—if not *the* most politicized—social service function governments provide. One of the results of this is a substantial degree of volatility in what ideally should be one of the most enduringly stable human activities. Political and education leaders come and go, bringing and taking away their ideas, priorities, and enthusiasms with them. Conflicts sometimes arise among them, for reasons that have nothing to do with educational ideals, making it impossible for them to join in partnerships. Thus, if the P–16 movement were to prosper and spread, it seems prudent to try to grow it in as many different states as possible. This is not a novel idea. It is Johnny Appleseed's idea. If it should happen to be a bad year for apples in Maryland or Georgia, it might be a good year in New York or California or Texas; and so it might be with P–16 partnerships.

So, my NASH colleagues and I took a stab at it. One more ingredient was essential. NASH is about as close to a virtual association as it is possible to get without it becoming totally imaginary. For an initiative of this magnitude, it was necessary to find a partner with a congenial philosophy and some real organizational muscle (not to mention a little money). We found that partner in the Education Trust, a non-profit organization founded and led by Kati Haycock and dedicated to dealing with precisely the issues faced by P–16 partnerships.

Here is what we did: beginning in 1997, our NASH/Education Trust partnership organized a gathering of state CEOs each summer (K–12 superintendents, system heads, and SHEEOs) for three days of candid and provocative discussions of P–16 issues, supplemented by presentations of relevant information from the Education Trust's growing archive of facts about education. We have also had the benefit of other distinguished participants. We learned what each of us was doing back home, or wanted to do, or intended to do. We kicked around ideas, "what ifs," and "war stories," complete with victories and defeats. I can say that among the many intellectual experiences of a long academic career, these were some of the most fruitful, thought-provoking, and inspiring sessions I can remember. But their most valuable feature was the reassurance that we were not alone. The P–16 business can be lonely, full of flak and frustration. My analogy between NASH and Alcoholics Anonymous was deliberate. Just as it is easier to stay off the sauce when you have similarly situated friends helping you, so it is easier to stay on the P–16 track with help from locomotive engineers of other trains on the same track.

Out of the 1998 CEO meeting came a symbol of the P–16 movement, the "K–16 Square," reproduced below. It represents the two primary partners of the education system (K–12 and post-secondary), the two primary occupants of classrooms (students and teachers), and 2 X 2 = 4 major commitments made by the participants at that session. The symmetry is important; each of the commitments is fundamentally connected to each of the other three, and none is more important than another. (The geometrically inclined will recognize a two-dimensional representation of a tetrahedron.) The CEOs of the seven states represented at that meeting signed on to the commitments of the Square and, subsequently, CEOs from eight other states have joined them. An accompanying statement, "With Renewed Hope—and Determination" is available from NASH.

State Systems K-16



Commitment A: We will ensure that all high school graduates meet high standards.
Commitment B: We will accept only teachers who can bring all students' performance to high standards.
Commitment C: We will accept into college only students who meet high standards.
Commitment D: We will ensure that all teacher candidates we produce are prepared to bring student performance to high standards.

Each summer, following the CEOs' meeting, the NASH/Education Trust partnership has organized a larger gathering for teams from states having, or wishing to have, active P–16 partnerships. The purpose of this gathering is to provide a forum in which each state team can learn from the others and work on state action plans for the following year. We have tried to inject each of these team gatherings with ideas developed during the foregoing CEOs' meeting. Out of them has come the "NASH/EdTrust State K–16 Network," which now counts 24 states actively participating.

The bottom line here is that the NASH/Education Trust partnership has succeeded in spreading the P–16 gospel through about half the states. These states are at various stages of development. Some have been in the P–16 game since before the term became fashionable. Some are just trying to figure out how to get started. (It must be noted that, although the glass is half full, it is also still half empty. Half the states have yet to join the movement.) But all 24 are enthusiastically pursuing P–16 goals in a way that would seem to ensure the future of the P–16 movement, whatever might be the vagaries of their state politics.

Where are Metropolitan Universities in All This?

Metropolitan Universities are right in the middle of the action, as usual. They are, by definition, located in large metropolitan areas and therefore in regions with large concentrations of schools, colleges, and universities. Many of them evolved from normal schools founded to train teachers, and continue to give higher priority to

teacher education than many major research universities do. Thus, they find it more natural to focus on the problems of urban schools. Indeed, it is often difficult for them to avoid confronting those problems. It is hardly surprising, therefore, that as one looks around the country, one finds that many of the most vigorous and successful school reform efforts are in large metropolitan areas.

Scale matters here, too. I emphasized above the importance of addressing education reform on as large a scale as possible, in order to maximize our chances of having significant impacts. Some urban school systems are as large as or larger than many entire state school systems. Successful reform in such systems may very well create important models and benchmarks applicable to statewide systems.

It is important here to recognize the importance of the concept embodied in the term "metropolitan." There is a tendency to think of urban school systems, with their problems rooted in poverty, race, and ethnicity, as fundamentally different from suburban systems serving students from wealthier, more homogeneous populations. But such distinctions are blurring as our cities evolve and our suburbs become more urban.

The fact that our nation is in the midst of the largest influx of new immigrants since the early twentieth century is a contributing factor. Multilingual education has become a hot issue in school districts that once could ignore it. Maryland's Montgomery County, a part of Washington's affluent suburbs, estimates that its current student population speaks more than a hundred first languages. (It is some comfort to remember that we have encountered this kind of situation before. On the eve of World War I many of Baltimore's schools taught half the day in English and the other half in German.)

Unfortunately, it is still true that our urban and suburban districts are usually separately organized, managed, and funded. This tends to perpetuate and exacerbate differences that are less and less in accord with underlying educational realities. Metropolitan universities that fully understand and consistently manifest their "metropolitan" perspectives can help to bridge this gap and bring benefits to schools that share similar problems, even though they happen to lie on opposite sides of an urban-suburban political boundary.

Metropolitan universities are thus well situated to take leadership roles in school reform and in the P–16 movement. Many have done so, including the University of Texas at El Paso, the California State University-Long Beach, Georgia State University, and the University of Wisconsin-Green Bay. I expect that others will join them in the vanguard of the movement in future.

What Next?

In the remainder of this article, I present some of my own opinions about the major avenues that the education reform movement is likely to follow over the next few years. Some of them are already well traveled, at least in some states. Others are currently just emerging. All of them are elements of a work in progress, a task of a generation or more. Most of us will not live to see its satisfactory completion. But there can be no more important or rewarding a task for all of us, and for those who will come after us.

The Facts, Just the Facts

My maternal grandmother often admonished me, "Always remember, Donald, that the world is full of people who know for sure things that just ain't so!" (She was living proof that education is not a necessary precursor to wisdom. She left school after fourth grade.) During a long career in education, I have frequently encountered examples demonstrating the validity of this caution, including not a few university professors, myself included.

One of the greatest contributions the Education Trust has made to the education reform movement is the mining and analysis of existing sources of data on many aspects of the education process. The results are sometimes encouraging, often depressing, and not infrequently surprising, even to education professionals. The invariable lesson is that we do not know as much as we should about how our education system really works, nor as much as we must to design wise and effective actions. The results also make it clear that, although there is much to be learned from available accessible data, there are important gaps in the data that need to be filled if we are to have confidence in what we are doing. I return to this subject below.

Many of the statements of "fact" I make below are derived from Education Trust data. I apologize in advance for those instances in which I get it wrong, and suggest that you can check up on me and get the straight scoop at http://www.edtrust.org.

Fixing High School

There seem to be many aspects of our high schools that need attention and some fixing. Though much of the emphasis in school reform has been on grades K–8, there are many indications that some of the most recalcitrant problems occur in high school. Data on students' rates of academic progress show that our students do quite well until they reach high school. Then their rates of progress decline substantially. Disturbingly, that drop in rates of progress has worsened during the last decade. International comparisons of student performance in mathematics and the sciences show that American students are quite competitive in the lower grades, but fall back to the rear of the pack in high school. George "Pinky" Nelson, former director of Project 2061, an education project of the American Association for the Advancement of Science, has said, "The average American high school graduate has about an eighth-grade-level

understanding of science. That's the bad news. The really bad news is that the same is true of the average American college graduate."

What could be the causes of these maladies? The available data suggest possible causes and therefore some possible remedies.

First, there is the fact that high school courses are mostly related to academic disciplines, such as history, math, chemistry, etc., and therefore require that the teacher have a substantial command of the discipline. Regrettably, that is not true of many high school teachers. Many are teaching "out of field," because fully qualified and certified teachers with adequate content knowledge are simply not available.

Much has been made of a national teacher shortage. It certainly is real, but the evidence suggests that it is not uniformly distributed across education levels. Elementary school teachers seem to be in plentiful supply in many areas, while adequately trained high school teachers in some disciplines are scarce as hen's teeth. In most years, the number of new University System of Maryland graduates (out of 16,000 or so) intending to be high school physics teachers can be counted on the fingers of one hand. It has been estimated that only about half of the nation's high school science teachers are fully qualified to teach what they are teaching, and that that fraction drops to a third in schools with large numbers of disadvantaged students.

The remedy here is not readily apparent, but I will make some suggestions below when I come to teaching and teachers.

Then there is the large variation in the rigor and intensity of high school curricula, both between and within schools. It is ironic that our democratic and egalitarian society still seems deeply committed to a curricular caste structure in our schools. One group of students is urged into the college prep curriculum, and some into Advanced Placement courses. Another group of students is advised into the vocational curriculum because they are not up to the college prep courses. And another group of students is not expected to learn much of anything, so we just baby-sit them until they reach school-leaving age. This is arrant and dangerous nonsense, of course. There is abundant evidence that all students benefit much more from taking a college prep curriculum than less rigorous curricula, whatever may be their ultimate career paths. And most will need it anyway. Three quarters of all American high school graduates undertake some type of post-secondary education within two years of graduation, and that fraction is slowly but steadily increasing, year after year. Our young people understand the message. A high school education alone is not sufficient preparation for a prosperous and happy life in today's society and economy.

Oddly enough, the attitudinal problem described above seems to be a generational problem. The kids understand the message being sent by our society and our economy, but their parents and teachers apparently do not. That assertion is supported by a survey of high school students, parents, and teachers. When asked about their expectations concerning college, 71 percent of the students said they expected to go to

college (and about that percentage actually do), while only 52 percent of their parents and 32 percent of their teachers expected them to. Apparently, many parents and an even greater proportion of teachers think their kids do not need to attend college. With that kind of adult encouragement and guidance, it is no wonder that many students avoid taking a challenging and rigorous high school curriculum. And it is no wonder that both our colleges and universities and our employers find much to complain about in the levels of preparation of our high school graduates. I find the attitude of teachers especially surprising and disturbing. But it does reinforce the notion that almost every problem facing our education system somehow relates to teachers, as sources of the problem, as solutions to the problem, or, usually, both.

The remedy here is obvious, and some states (e.g., Texas) are moving aggressively toward it. It is to ensure that *all* students undertake a rigorous high school curriculum of the type conventionally called a college prep curriculum. The curriculum should be based on clearly articulated learning performance standards and taught by fully qualified teachers. (That last is the most difficult of the requirements, as noted above.) Texas has made such a curriculum its default, statewide. By "default" is meant that all students are automatically enrolled in a rigorous college-prep curriculum from which they can be extracted only through formal written request by their parents. (That escape hatch may be appropriate, I suppose, but given the evidence about parents' attitudes described above, I must admit it makes me a little queasy.)

Recently there has been some public attention to the problem of the senior high school year. The idea is that too many high school seniors, having met most of their often rather minimal graduation requirements and sent off their early-admission college applications, see the senior year as their last chance to have a good time and spend it coasting from the football season to the Senior Prom. This, it is quite reasonably asserted, is a waste of the students' time and the taxpayers' money. Solutions both imaginative and radical have been proposed, including abolishing the senior year altogether. It seems to me that something like the Texas default curriculum is a very good solution to this senior-year problem. It should keep seniors busy and challenged right through to the end. And, whatever the academic performance level at which seniors emerge from high school, the evidence is clear that such a rigorous curriculum will materially increase their chances of graduating from high school, of attending college, and of succeeding in college.

There remains plenty of room here for argument about what a college prep curriculum should be, of course. This argument cannot successfully be carried on within high schools alone. It must also engage post-secondary institutions and faculties in true P–16 fashion, because of the linkages between high school and college standards and curricula. That brings me to the next section.

Aligning High School and College Standards and Curricula

It stands to reason that in a nation where most high school students go to college, careful attention ought to be paid to the connection between high school and college standards and curricula. It is surprising how little serious attention this high school-college interface has traditionally received. That is changing. One of the primary foci of most P–16 programs is the alignment of standards and assessments, and sometimes of curricula, between high schools on the one hand and colleges and universities on the other.

It must be said that our states have gone much further on the high school side than our colleges and universities have on their side. All but one of the states have established explicit content standards for high school courses, but fewer than half have colleges and universities that have done so for either admission or post-admission placement. All fifty states have articulated content standards for high school exit, but only three or four states' colleges have done so for either admission or placement.

Colleges and universities are in a very powerful—and responsible—position in this matter. When most high school students intend to attend college, and do attend, what colleges say about what they expect of entering freshmen, and how they say it, is important and has a powerful impact. The worst thing our colleges can do is to be ambiguous and unclear about what they expect, but that is just what many of them are doing. It is time for colleges and universities to accomplish their part of the task. Our states and their high schools have done their jobs, for the most part. Now it is our colleges' turn.

It is of course possible for high schools to decide independently on high school course content and exit standards, and assessment instruments for judging student performance against those standards, and for colleges to decide independently on their own admission and placement standards. That is the way we have traditionally done it. It is increasingly evident that this is irresponsible, at best! What we need, or, rather, what our students need, is a single set of rigorous standards, assessments, and high school curricula that will at the same time maximize their opportunities for success in high school and for a smooth and efficient transition to successful college experiences. That system of standards, assessments, and curricula ought to be designed and implemented by high school and college faculties working together because, if they do not, the result will be the familiar disconnected hodgepodge of requirements that makes the transition from high school so awkward and difficult for many students.

I do not underestimate the difficulty of such collaborative efforts. I have been a tenured professor for thirty-eight years. If there has been any persistent experience over that long career, it has been the continuing argument about what students should know and be able to do when they enter college and beyond. As much as anything, "The Core Curriculum Debate" is the name of a chronic academic disease. I suspect something similar occurs in high schools. But, for the sake of our students, the time has come to

agree on a system of standards, assessments, and curricula, firmly based on what research tells us is best for all students (rather than for institutions, teachers, or professors). College and university faculty must take more active roles in developing that system, working closely with their high school peers and partners. We would all do well to adopt the goal of the very successful El Paso, Texas P–16 collaborative, "To graduate all of our high school students prepared to enter college without remediation."

Our experience in Maryland, and that of those in other states, suggests that the most difficult area in which to reach agreement is mathematics. Available data show that extensive and intensive engagement in high school mathematics is strongly correlated with success in college for all students, not just those in technical majors. College faculty generally understand this, and are aware, often painfully aware, that lack of high-level mathematical skills is enough to bar a student from many attractive career paths. My own experience as a teacher of university elementary physics courses convinced me long ago that whether a student has or has not taken physics in high school is irrelevant to their performance in college physics. But a lack of strong mathematical skills is fatal! Unfortunately, appreciation of the importance of mathematics is not widespread among the public and, too often, among high school leaders. We live in a society in which incompetence in mathematics is frequently seen as a badge of honor and pride, proof that the innumerate are regular people, not nerds. But the evidence is there, and it is compelling. Strong mathematical skills at the high school/college transition are essential to success in college and career.

Like everyone else, I have my own favorite recipe for the ideal high-stakes, high-level high school curriculum for all students. It includes four years of English, four years of mathematics, three years of science, three years of history, and at least two years of a language other than the student's first language. (It would be best if the latter were begun in elementary school and then continued through middle school and high school. Obviously, that requirement is automatically satisfied for those students for whom English is a second language.)

It's the Teachers, Dummy!

This message emerges over and over again when inadequacies in our education system are addressed. Teacher quality is the theme of this *Metropolitan Universities* journal issue. My fellow article authors expertly address various aspects of the teacher quality issue (and the teacher quantity issue). It would be redundant and presumptuous of me to write at length on the subject. What I will do instead is to begin with some assertions. I believe them to be true, based on available data, my experience in our Maryland K–16 initiative, and on long experience in higher education. They all identify aspects of the teacher quality and quantity issues that demand attention, P through 16. I then will describe an all-encompassing issue that I believe must be dealt with if we are to make significant progress on any of the others. It too needs to be addressed through P–16 partnerships, at least in part.

Here are my assertions.

- We are educating and training teachers for classroom environments that do not resemble those in many schools today, and thus underpreparing them for what they will encounter as new teachers.
- Our teacher candidates receive too little practical experience in real school environments. Comparisons with practices in other demanding professions (e.g., medicine and dentistry) suggest what ought to occur.
- Too many schools do not provide new teachers with the kind of collegial support and mentoring they need to be successful.
- Middle and high school teachers are underprepared in the disciplinary content areas they will teach. Our college and university arts and sciences faculties bear a large part of the responsibility for this deficiency. They need to work more closely with their colleagues in schools of education to rectify it. To borrow from a popular slogan, "It takes a whole university to raise a teacher."
- Teachers, particularly high school teachers, are insufficiently informed about the demands that will confront their graduates when they enter post-secondary education and/or the workforce. They are thus unable to give their students the quality of advice about their futures that they need. The same is true of high school counselors.
- Current professional development programs are too often a sham and a delusion.
- State certification systems for teachers are woefully lacking. Many professions require certification and/or licensing, sometimes by the state and sometimes by the profession itself. Examples of the latter include bar exams for lawyers and medical board exams for physicians. Any comparison of such professions with teaching will show that certification standards for teachers are frequently far from rigorous, and depend heavily on bureaucratic bean counting (of courses, etc.) rather than demonstrable knowledge and skills. Far too many teachers are certified but unqualified.
- Paths of entry into the teaching profession are over-controlled, and have the effect of denying access by our schools to capable people who could help them address their problems, including current shortfalls in teacher quantity and quality.

Here is my overarching and all-encompassing issue. Teaching is a profession every bit as demanding and difficult as any other. Yet, the most cursory examination of the lives and work of teachers will show that they are neither treated as professionals nor expected to behave and perform like professionals. Our school systems have become bureaucratic behemoths that tell teachers what to do and how to do it, that treat them like factory workers, and that demand from them services that distract them from their academic responsibilities that others could perform. Our society once gave teachers the respect and high regard it gave doctors and ministers. No longer. We in higher education are not immune to such attitudes, as demonstrated by the low status accorded schools of education in many universities.

This situation has been noted and decried by many. It is past time to do something about it, in my opinion. It is such a huge and expansive problem that it is difficult to know how to get a handle on it, but we must start nevertheless. One important first

step is the creation of a vision of how teachers ought to be treated and to behave. My own response is, "Like college and university professors, perhaps more so." Let me expand on that belief.

A good teacher ought to be seen primarily as the person directly responsible and accountable for the intellectual progress of the students under his/her tutelage. He/she should have substantial control over what is taught and how it is taught, accompanied by the expectation that the only outcome that really matters is the students' performance as measured by valid assessment instruments against relevant standards. The teacher should have authoritative intellectual command of the subjects being taught, and of the necessary pedagogical techniques and methodologies. (That latter point is very important. I believe it is harder to teach physics to a diverse group of students than it is to do research in physics.) Like a good physician treating patients, a good teacher must be able to tailor his/her teaching to the individual needs and circumstances of each student.

To accomplish these things, the teacher must have the necessary tools and work environment. That includes modern technology (computers and Internet access) and also not-so-modern technology (telephones, books, paper, pencils, etc.). Teachers must have time to think and learn, from each other and from others outside the school. That means schedule flexibility during the school day and year, and recognition that times when school is not in session (e.g., summers) can provide important opportunities for professional development, formal or informal. Teaching should be a year-round profession.

And finally, teachers should be properly rewarded. That is only partly about salaries. Many of the factors well known to be conducive to employee morale in other settings are often absent in teachers' lives. These include opportunities for social interaction with colleagues, mentoring of newcomers by experienced colleagues, mechanisms for informal peer support and approval, and formal professional recognition by colleagues and institutional leadership. Many of these things cost little. On the matter of formal professional recognition, I have always thought it bizarre that a new teacher can begin a career with the title "Teacher," and end it after thirty-five years of successful service with the same title, "Teacher." Surely, we could recognize achievement in ways similar to those we use in universities. One begins as an Instructor or an Assistant Professor. Really good performance usually leads to promotion and tenure. (Lesser performance leads to being shown the exit.) Continued good performance leads to further promotion. Truly outstanding performance often leads to titles such as Distinguished University Professor or, occasionally, Nobel Laureate. Surely we could find ways to distinguish and recognize our finest teachers.

It is partly about salaries, though. Almost everybody would agree that teachers are poorly paid relative to other professions. Many know for sure (in accordance with my grandmother's admonition) that this is so because we cannot afford to pay teachers more. I beg to differ. I have developed a conceptual model for teacher compensation that suggests otherwise. In it, adequate teachers would be paid about what teachers are

paid now. The very best, or those in high-demand, low-supply fields, would be paid about twice that. That amounts to about a 50 percent increase in average teacher salaries overall. What would that cost on a national basis? It works out to about 0.6 percent of the gross domestic product, the equivalent of about a 5 percent increase in health care costs. Clearly, if we had the will we could find a way to fund that. But perhaps we would rather buy our kids video games.

The essence of all this is that we do not demand that our teachers function as professionals, we do not allow them to do so, and we do not reward them for doing so. We need to help our teachers become true professionals. Lee Iacocca, former CEO of the Chrysler Corporation, once said, "In an ideal society the best of us would be teachers and the rest of us would have to settle for something less." It is high time we embraced that admirable attitude and put some substance behind it.

And It's the Principals Too

Good leadership is critically important in any organization. That is as true of schools as it is of a business or a military unit. Very often, the differences between high-performing and low-performing schools in similar circumstances can be traced to differences in the quality of their principals. Lately, some organizations have begun to focus on this issue. The Southern Regional Education Board (SREB), for example, has established a project to help selected schools of education revamp their school leadership programs.

A reason why too many principals seem not to be up to their tasks is emerging from this work. In most professions, practitioners who exhibit both high levels of professional skill and leadership qualities are informally identified early in their careers and guided and mentored by their peers. They may be given special learning opportunities, and they will usually be tested and tempered in positions of increasing responsibility. Most professionals will tell you that they knew which of their colleagues was a likely future medical school dean or managing partner of a law firm long before they were chosen for such a position. In short, up-and-comers are identified early and tapped for leadership training and experience. Apparently, that does not routinely happen in elementary and secondary education. The SREB project is exploring what could be done about that. This is clearly an area deserving of more attention.

What's Sauce for the Goose...

The notion that schools should be held accountable for the performance of their graduates has been gathering steam for some time now. It is gradually dawning on some that what is sauce for the elementary and secondary goose might also be sauce for the higher education gander.

Colleges and universities have traditionally not paid much attention to determining what their graduates actually know and can do. It is assumed that course grades and

the resulting GPA are adequate indicators of overall student performance, or that admissions to professional schools or scores on graduate admission examinations are good measures of institutional performance. Lately, however, indications that the emperor might be a bit under-dressed have been appearing with some regularity. There are complaints from employers that their newly hired college graduates have large gaps in their capabilities. There are surveys that indicate, for example, that many college graduates cannot locate the American Civil War in the correct century. There is the notorious video tape demonstrating that new graduates of a distinguished New England university cannot explain correctly why it is cold in the winter and warm in the summer.

So the idea that colleges and universities should establish explicit standards and expectations for their graduates and demonstrate that they meet them is attracting public attention. Two years ago the National Center for Public Policy and Higher Education issued report cards on the state of higher education in all fifty states. All fifty received an "Incomplete" in the category of assessment. A second such report card is expected this autumn. It will be interesting to see if any states have managed to clear their "Incompletes." Recently the Middle States Association (and, I am told, other regional accrediting associations) have adopted new accreditation standards that explicitly require colleges and universities seeking accreditation or re-accreditation to show that they have performance standards for their graduates and routinely demonstrate that they meet them. And, of course, the Elementary and Secondary Education Act requires the states to report on standards and assessments for their teacher education programs. If teacher-education graduates, why not all graduates?

In many colleges and universities, that suggestion will not be greeted with enthusiasm. Outrage is more likely. As this chapter was being written, there appeared an article in the *Washington Post* about Virginia's new state requirement for performance assessment of graduates from its universities. In it, the chairman of the Faculty Senate at the University of Virginia was quoted as saying, "I'm not sure how producing a report is going to help. We trust our own capacity to assess the competence of our students." My distinguished Virginia colleague misses the point, I think. Of course it is important for a faculty to judge the competence of its students. But that is no longer sufficient—if it ever was. It is also important that a university be able to demonstrate publicly to its tax-paying supporters and to the parents and employers of its graduates that they know and can do what those stakeholders expect. "Don't ask us, trust us!" will not cut it much longer.

Like many other things, this looming issue could benefit from attention by P–16 partnerships. Our K–12 colleagues have been in the standards and assessment business for a long time, and have much to teach us in higher education about how to respond to this challenge.

And Now, From Your Friendly Federal Government...

The teacher education reporting requirements that recently appeared in the ESEA, together with a requirement for performance testing in math, English, and science at least once during grades 10–12, are small but significant forays by the federal government into the education standards and assessment movement. There is no reason to believe that it will stop there. It is worth noting that the higher education act will be the subject of reauthorization efforts during the next session of the Congress. All of us should be alert to the threats—and opportunities—that it may bring to the issue. We all have differing personal perspectives on this. I happen to approve of what is in the ESEA, and, though always wary of possible threats, believe we should be prepared to take advantage of the opportunities to propel the movement forward.

Back to the Facts

It has become abundantly clear to those of us who have been laboring in the P–16 vineyard that we are often lamentably lacking in information and knowledge about the education system we are trying to improve. As I noted above, the Education Trust has done a masterful job of mining and analyzing available databases of all kinds to create pictures of the system. Others have likewise made important contributions. But for our work and, we believe, the work of education leaders and policy makers in the schools, universities, education departments, state houses, and legislatures, important gaps remain in our information and knowledge about the issues with which we are dealing.

One of the things I have found striking as I have striven to understand the implications of the data is how frequently I have been surprised, how often something I thought I knew and understood well turned out to be simply wrong. Three examples, if I may:

- The state of Tennessee has for some time maintained a comprehensive database containing indicators of K–12 student performance, over time, for every individual student. William Sanders, formerly a Professor at the University of Tennessee, has worked with this database for years. He has extracted from it numerous fascinating conclusions. Among them are these concerning teacher performance: the database permits tracking every student's academic progress from year to year. It also permits linking each student each year to his/her teacher(s). Therefore, the progress of the students of every teacher, averaged over classes and over several years, can be determined. Now, arguably, that is the only teacher performance indicator that really matters: how far do students progress, on average, under a teacher's tutelage? With these teacher performance data, teachers can be stratified by performance level. Now comes the surprise. Most people I ask think, as I did, that the performance difference between the best and the worst teachers is probably on the order of 20–25 percent. It is actually 100 percent. The best third of teachers consistently advance their students by one-plus grade levels every academic year. The worst third consistently advance their students by approximately *zero* grade levels every academic year. Further, Sanders finds that the damage incurred at the hands of a poor teacher one year can

be repaired by a good teacher the next. But if a student is unlucky enough to be assigned three poor teachers in a row, the damage becomes irreparable.

- Everyone thinks he/she knows why so many of our schools are failing. Kati Haycock has summarized what one hears if one asks the experts, our educators. They say, "It's the kids and their families. Many are poor. There's that legacy of discrimination. Their lives are complicated. They have too many distractions. We educate more young people than anybody else." Kati characterizes the attitude reflected by such comments as "learned helplessness," reflecting a belief that the underlying causes of our education system's failures are beyond our control, so there is no point in exerting ourselves to make things better. Happily, that belief is a myth. In a report titled "Dispelling the Myth," the Education Trust has presented data that show that thousands of schools are succeeding in bringing poor, disadvantaged students to nationally competitive performance levels. More recently, the Trust has extended its investigation of the facts into the realm of higher education. Again, the facts turn out to be at odds with common perceptions. They are misperceptions, myths. There are large differences among states, and among colleges and universities, in their degrees of success in bringing diverse student bodies to high levels of performance. All of this is both dismaying and encouraging. It is dismaying because it is evident that our education system, at all levels—elementary, secondary, and post-secondary, is not performing as well as it should. It is encouraging because it is also clear that it is not performing as well as it could. Many schools, many states, and many colleges and universities are demonstrating daily that it can be done. It remains only for the rest to learn from the successes of their peers and to adopt their practices.

- It is well known that the United States provides post-secondary education to more of its citizens than any other country. Unfortunately, that is not true. That is another myth. According to data from the Organization for Economic Cooperation and Development (OECD), based on surveys of its member states and a few other developed nations, the U.S. did rank first in the proportion of its high school graduates entering post-secondary institutions as recently as 1991. By 1999, however, the U.S. had fallen to thirteenth. The OECD data reveal other worrisome facts. The U.S. population displays the largest variation in educational accomplishment indicators (e.g., literacy) of any nation in the OECD sample. And they also show that some OECD nations are making very rapid progress relative to the U.S. Britain, for example, showed student performance in international comparisons similar to ours as recently as a decade ago. Ambitious education reforms begun in the Thatcher administration and extended by the Blair administration have moved British students well ahead of American students. The adage, "Don't look back, they may be gaining on you," has ceased to be apt for the U.S. in education. We need to look out ahead, for some of our major economic competitors have passed us and are leaving us in their dust.

These three examples illustrate how important it is to distinguish between myth and fact in plotting our course toward a better education system. We need more and better data, information, and knowledge. Here is what I believe we should do about that.

The fundamental building block of the education system is a pair of individuals consisting of one teacher and one student. Classrooms are occupied by many such pairs, each with the same teacher, and an individual student's academic career involves pairs made up of that student and many different teachers. If we are to understand what is happening in the education system from its roots to its highest branches, we need detailed data for each individual student and each individual teacher. For each individual, these data should extend over time from P to 16 and beyond. They may be collected and maintained at the school level, the district level, the university level, the state level, the federal level—or on a smart card in the wallet of a student or a teacher. All these data should be part of an integrated linked data network that can serve many uses. These include:

- Providing diagnostic information and guidance to students and their parents for optimizing academic progress;
- Providing diagnostic information to help teachers adapt their teaching methods to individual students;
- Providing diagnostic information to principals and superintendents to help them evaluate student and teacher performance and to manage their schools;
- Facilitating the transfer of student-related information (e.g., transcripts) from institution to institution as a student transitions from kindergarten to elementary school to middle school to high school to college to the next college to graduate school to the alumni association;
- Providing lodes of comprehensive data that can be mined by education researchers striving to understand the inner workings of the education system;
- Making available necessary information to policy makers and politicians who need to determine how best to deploy resources in support of the education system, and how to design workable accountability mechanisms.

Such a data network and its uses bear some similarity to the use of medical records for purposes ranging from the treatment of individual patients to the conduct of large-scale epidemiological research.

Developing such an education data network on a state or national scale would obviously be a huge undertaking, full of challenges and obstacles. But the need is clear, and some schools and states have made major strides toward just such a network. I believe it is urgent that we undertake to build on what already exists to create such a network in every state and to link them together into a national network. I also believe that one of its most important uses will be as an information resource for an expanded and reshaped education research enterprise.

Reshaping Education Research

Several years ago I served as chairman of the National Reading Panel, a group charged by Congress to examine what is and is not known from rigorous scientific research about the teaching and learning of reading. The panel identified more than a hundred thousand reports in the literature relevant to that subject, and conducted in-depth review and analysis of reports on a half dozen major topics, using only those reports that satisfied a set of conditions that were essentially those used in clinical trials or randomized field tests in medical research. As a non-expert in the field of education research, I was struck by the fact that the reports satisfying those conditions in each topic area numbered well below a hundred.

That experience convinced me that we need to reshape education research. Much of it now is observational research done on a relatively small scale. Researchers observe what goes on in a classroom or a school, draw conclusions, perhaps recommend actions, and publish their results. The relatively small scale is dictated in part by the non-availability of funding at levels that would be required for anything larger. In my view, a glimpse of where education research needs to go is provided by the medical research enterprise. If one thinks of ignorance and incompetence as a preventable and treatable disease, then what the education system tries to do resembles what the medical system tries to do.

There is nothing wrong with well-designed observational research. Medical researchers do it all the time, e.g., by comparing those with and without a medical condition to see how they differ, or by following people exposed or not exposed to a treatment to assess their responses. Such research can suggest questions that should be asked, or hypotheses deserving further testing. But in the incredibly complex entity that is a human population, such questions or hypotheses can reliably be answered or tested only through large scale and carefully designed trials. (An interesting example that has attracted public attention recently is the national study of hormone replacement therapy for post-menopausal women.) I would assert that the same is true for education research.

We all recognize that reshaping the support system for education research to permit such a shift in the character of education research is a major task in itself. A rule of thumb for the cost and duration of a modest medical clinical trial is $5 million and five years. That kind of money does not grow on education research's traditional trees. I would suggest this as a possible topic for consideration in the forthcoming reauthorization of the higher education act.

Those, then, are the major issues that I expect to be on the agenda of the P–16 movement for the next few years. The higher education members of the P–16 teams that will provide the movement's motive power ought to include all our universities. The reality, however, is that most of them will come from among higher education's work horses, not its show horses. I expect that metropolitan universities will be prominent among them.

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