

Public Education in America:
Crisis in an Age of Knowledge

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Presentation to President's Weekend

Introduction

As many of you know, I am a scientist by both training and background. As such, I suffer from two character flaws: first, I tend to be a bit too candid in my remarks. Second, I tend to be one of those people who lives more in the future than in the present or the past. My life as a scientist and an engineer has been spent working on such futuristic areas as nuclear rocket propulsion, laser-driven thermonuclear fusion, supercomputers, and robotics. Now, as we enter the 1990s, I find myself looking once again to the future, facing the challenge of helping to build a university capable of serving our state and our nation in the 21st century.

But today, I am going to put aside my hat as a university president and take a somewhat broader perspective. As a member, both of the National Science Board and the National Academy of Engineering, I have been heavily involved in recent years in a number of efforts to assess the challenges facing this nation as we approach the 21st century. The dominant theme of these activities, of meeting after meeting, of study after study, is the growing crisis our nation faces in the development of its human resources and in the education of a work force that will be competitive in the global economy of the century ahead.

Let me illustrate these discussions with several examples from very recent personal experiences. Last year I attended an international conference involving the top scientists, government officials, university leaders, and business leaders from a number of nations throughout the world. At this meeting, a senior executive of Nissan pointed out that, following an extended visit by a number of senior Japanese business leaders to this country, the group was asked what they viewed as the greatest strength and the greatest weakness of the United States. The Japanese were unanimous in their

conclusions: America's greatest strength was its research universities, clearly the finest in the world. America's greatest weakness, however, was public education at the primary and secondary level.

Quite a paradox isn't it? Quite a challenge!

This past January, I attended the annual meeting of the Business-Higher Education Forum in Tucson. This is an organization comprised of forty of the nation's leading chief executive officers and forty university presidents. During this meeting, these business leaders stated their belief time and time again that the quality of public education in American today was the most serious crisis our nation has faced since World War II. And yet, they also expressed their frustration that this was a crisis about which there was very little public awareness and even less public consensus.

AAU Meeting

An extraordinary event at our fall meeting in Boulder. We were joined by Bruce Alberts, Don Kennedy, and Howard Hiatt to discuss the new National Science Education Standards report. They sought to make the case that education is not simply one of the issues for the future of America. Rather, it is THE issue.

The new science education standards focus on "inquiry-based instruction". This has great implications for universities. In fact, there is a total mismatch between what standards demand and what universities do:

- ...admissions standards
- ...how colleges teach
- ...the teachers we produce.

They had a series of interesting recommendations for universities:

- 1) Every university should make available both appropriate career counseling and specific programs that allow S&E majors to become certified K-12 teachers WITHOUT going through the usual battery of education courses.
- 2) Develop more sophisticated admissions policies (...the SAT is the enemy of school reform...)
- 3) Faculty should revise all introductory S&E courses. There should be at least one faculty member in each department focused on pedagogy.
- 4) Universities should commit themselves to institution-wide efforts aimed at addressing the challenges of K-12 education. Further, universities should support those interested in K-12 education, offering matching funds to departments.

It was particularly significant that 50 university presidents spent an afternoon focused on K-12 education and what they might do. They, like me, were concerned.

In my frequent interactions with the leaders of the public and private sectors throughout this country I detect an increasing sense of both urgency and pessimism about America's will and capacity to take the actions necessary for our future. Indeed, many of these leaders now believe that our nation is well down the road toward "outsourcing" its knowledge resources, just as we have been our labor, our manufacturing, and our products. American industry is losing confidence in our domestic supply of knowledge resources--

that is, a well-educated labor force or an adequate supply of scientists, engineers, and other professionals.

There are several principal trends which lead to this growing pessimism: First, there is increasing concern that the staggering problems facing K-12 education can simply not be overcome on a time scale necessary to preserve our economic strength. The bureaucracy and political resistance may just be too great.

Second, despite the fact that most other nations regard higher education as America's greatest strength, there is little sign that this view is shared either by our elected political leaders or the public at large. Indeed, in recent years it has become fashionable to attack our universities, even as we continue to underfund them in many cases.

The third trend involves the rapid growth of "transnational" companies, that is, companies which have no particular allegiance to a region or nation, but rather seek resources, whether they be labor, processes, or knowledge, wherever they can get them at the highest quality and lowest cost. The changing structure of the global economy suggests that outsourcing of knowledge from other parts of the world will become increasingly common as the quality of American education deteriorates. There are already many signs of this. For example, Motorola has recently announced it is establishing a permanent recruiting office for scientists and engineers in India. Furthermore, we already know that over 60 percent of all doctorates produced in this nation in engineering and physical science are awarded to foreign nationals.

The prospect that we will give up on our efforts to produce an educated work force capable of creating and supplying new knowledge is frightening. Industry has already outsourced labor and

manufacturing. Can we afford to lose our competitive capacity to produce knowledge as well?

We must face the facts. We are not going to be rich and prosperous if all we do is mow one another's lawns. Or, more to the point, if all we do is engage in financial gymnastics such as leveraged buy-outs financed by junk bonds, we will destroy our capacity to make the long-term investments and commitments necessary for competitiveness. We simply have to bring something to the table of the international marketplace. We have to generate our wealth through our people, their knowledge, and their skills.

Let me be frank with you. I am very worried--worried about the future of our nation, worried about the future of our state, worried about the future that my children will inherit, and worried about both your future and mine--since it is clear that everyone of us is at great risk because of our serious under-investment in the quality of our human resources.

Today I would like to share with you my concerns. In a sense I will only be reading some of the writing on the wall. But, beyond that, I am going to be so bold as to make several suggestions about what might be done about the state of public education in America. In particular, I wish to issue a "call to arms" to you as parents and as citizens to take action before it is too late.

K-12 Education--The Score Card

A Nation at Risk

Today an unprecedented explosion of knowledge heralds the onset of a new era. Since people are the source of new knowledge,

our nation is relying increasingly on a well-educated and trained work force to maintain our competitive position in the world and our standard of living at home, as well as to harness the power of this new knowledge for the good of our planet and for all of mankind. Yet, here we are in real difficulty because we are simply not educating enough new people to keep our economy competitive. Further, there are serious signs that the education of the present American work force is seriously inadequate to meet the demands of the next century. This has become known as "the pipeline problem" since it involves the full spectrum of education, from preschool through K-12, through higher education, to lifelong education.

Today I will focus my remarks on K-12 education because, like the Japanese, I believe that this part of the pipeline is clearly our weakest link, our Achilles' heel. By any measure, K-12 education is in serious trouble. We are indeed a "nation at risk," or to quote a U.S. Senator's observation in a meeting I attended last Wednesday in Washington, "Public education in America is an absolute disaster!"

Graduation Rates and Literacy

The United States today spends more on education than any nation on earth, \$328 billion, more than for any public service, including national defense. Yet, functional illiteracy in this nation currently runs between 20 percent to 30 percent, compared to a high of 5 percent in most other industrialized nations. Fully 25 percent of Americans now fail to complete high school. Each year 700,000 students drop out of high school and 700,000 more graduate without functional literacy.

Achievement Measures

Our first tendency is to think that K-12 education is merely failing with minorities and at-risk students. However, other comparisons demonstrate that this is not the case and that the weakness of our educational system extends throughout all of our society. Even if we exclude those who drop out, we are presently only educating 15 percent to 20 percent of our students to an intellectual level capable of functioning well in the everyday world. In recent assessment tests it was found that only 20 percent of high school seniors could write an adequate letter. Only 12 percent of high school seniors could take a group of six fractions and put them in order of size. And only 5 percent of high school graduates today enter college ready to begin college level mathematics and science courses or to approach the reading of technical material.

Indeed, last week we had even more evidence that there has been little progress in Michigan with the announcement of recent assessment tests in which it was noted that: i) over 70 percent of students failed the reading section; ii) over 60 percent failed the science section; and, iii) over 30 percent failed the mathematics section.

International Comparisons

At every level of education, American children rank near the bottom in their knowledge of science and mathematics when compared to peers in other advanced nations. For example, compared to students in fifteen other nations, U.S. high school seniors scored among the bottom quarter on calculus and algebra achievement tests. Our seniors ranked fourteenth among fourteen nations in science achievement. This dismal performance is present at every level of American primary and secondary education, in essentially every discipline.

As Dr. Bassam Shakashiri, Director of the National Science Foundation's programs on science education, put it recently in testimony to Congress, we are a sports-oriented society, and we like to frame issues in the language of sports such as "being number one." But public education is not a game. Rather, it is a deadly serious matter of raising a generation of Americans who will be able to hold their own in an increasingly competitive, increasingly complex, and increasingly science- and technology-oriented world.

The coin of the realm in the age of knowledge that is our future will be knowledge of science, mathematics, and technology. Yet it is clear that most American students today are simply not developing the knowledge base or the skills necessary to compete in this world.

The students in our classrooms today--students testing at the bottom of the heap in world terms--will be the backbone of our labor force in the century ahead. Indeed, they will be running this country with several decades!

I think you can see why I am worried--and why you should be worried. We are indeed a nation at risk, and we will become even more so as we grapple with the extraordinary changes underway in our society, our nation, and the world.

My central point is that education, broadly defined, will be the pivotal issue in determining which of these alternative futures will be Michigan's and America's. Previous economic transformations were closely associated with major public investment and infrastructure, such as railroads, electrical networks and highways. I believe that the coming economic transition and equivalent infrastructure will be an educated population.

It seems clear that the dominant issue of the 1990s will be the development of our people and the education of our youth. People must be our major focus. It is people, not equipment or buildings or organizations, who are the sources of creativity. They generate the knowledge that makes innovation possible. They provide the work force that leads to our wealth and makes our society run. They are our researchers and teachers, our leaders and managers and decision makers in a modern technological society.

But here we face very serious challenges. . .

So What is Wrong with Public
Education in America Today?

The Last of the Smokestack Industries

As Albert Shanker, president of the American Federation of Teachers, has observed, a fundamental flaw in our system of public education is our assumption that our teachers are the workers who have the task of delivering knowledge to our children. Such a system would make a lot of sense if we view the student as a passive object, passing down an assembly line, being worked on by others, the teachers. First the English teacher hammers English into a student, then the student spends forty minutes in another classroom where the mathematics teacher screws in mathematics, and so on throughout the day.

Perhaps this lock-step approach to learning was fine for training our industrial work force, organized hierarchically into a structure in which only those in top management needed to analyze, think critically, and make decisions. But today's world is a very different place requiring different skills, more initiative, and creativity.

What we need to do is stop thinking about how to fit teachers, students, and parents into an old fashioned factory. Even modern business is abandoning the factory model. Instead, we need a structure in which the students become the workers. In this sense then the teacher is not the person who pours knowledge into the student; the teacher is rather a manager with the same concerns that a manager of any company would have: How do I get my workers (students) to come here wanting to work (learn)? How do I get them to do the work (learn)? How do I get them to manage and be interested in the quality of their own work (learning)?

The "Blue-Collarization" of the Teaching Profession

It seems clear that teachers are--or at least should be, regarded as--among the most valuable members of our society, since in a very real sense they are creating our future. And yet how do we treat them? We give them low salaries, low status, and few rewards. We give them little opportunity for control of the curriculum and drown them in a mire of bureaucracy. We assign them the challenge of dealing with children from disintegrating families, impoverished backgrounds, dulled by the impact of television. And then we criticize them for not doing their job!

Just think of the image of the teaching profession that this creates in the minds of a talented undergraduate. Why would any college student--particularly those struggling through difficult majors such in the sciences or mathematics--want to enter what has, in essence, become a "blue collar career"? Why would a strong student want to join a union, earn low wages, struggle with excessive administrative bureaucracies and meddling school boards--when the alternatives are

investment banking, engineering, medicine, or law (at least, "LA Law" style. . .)? And could you blame them?

The sad fact of life is that the teaching profession, at least as it is presently configured, is simply not capable of attracting our best students. And America--and our children--are much the worse for it!

The Conflicting Missions of Our Public Schools

Once we believed that our schools were primarily for learning. However, over the past several decades, we have assigned to our public schools a broader array of social roles for which they were unprepared, thereby undermining their primary purpose of education. We have shifted our schools attention from the intellectual achievement of their students and more to concerns about social adjustment, individual realization, and group consciousness. Indeed, we have lost any coherent vision of the precise role that our schools should play in our society. And, of course, part of this trend toward a broadened role for our public schools has arisen from our abdication of our responsibilities as parents.

Family Attitudes

A recent survey conducted both in America and in Japan of mothers whose children were not performing up to expectations found some very revealing differences: American mothers immediately assumed their children were not smart enough; Japanese mothers thought that their children were not working hard enough. A rather revealing example of the difference in family attitudes, is it not?

Perhaps it is the lack of commitment of the American family to the education of children that most distinguishes us from other countries. We seem too busy to help our own children in their studies or to participate in their activities.

Of course, there are many situations in which we cannot blame the family. Because for many children, the family simply doesn't exist!

The Disintegration of Our Social Fabric

Roughly one-half of the students enrolled in K-12 education come from what we used to call "broken homes." Except that in today's society this situation has become the norm rather than the exception. To this we must add the full range of other social ills, ranging from the mind-numbing impact of television, to poverty and the disintegration of the family, to drugs and crime. Of the class of 2002 that started kindergarten this past year, 25 percent are living below the poverty level, 15 percent have physical or mental handicaps, 15 percent have been born to teenage mothers, and 10 percent have illiterate parents.

Public Attitudes

The real power to influence education lies at the local level. Yet here our schools face a very serious challenge, since few of us are willing to step forward and become involved with public education.

Sure we all complain about our schools a great deal. But how many of us are willing to run for schools boards with the objective of achieving real change? How many of us are willing to support the tax millages necessary to build strong schools or the other tax measures necessary to achieve equity in school financing? How many of us as citizens have stepped up to our political

responsibilities and demanded that our publicly-elected officials respond to the seriousness of our deteriorating system of education?

In fact, when it comes right down to it, how many of us are really willing to insist on quality in our schools in the face of the political pressures and costs which such a quality commitment will trigger? How many of us realize that what is at stake here is not just the future of our children, but the future of our nation and our way of life, not to mention our own personal well-being?

The Failure of Our Universities

While I am taking pot shots at various groups, let me also aim a few as well at higher education. Many of the problems faced by public education these days are our doing. For years in most of our institutions the education of K-12 teachers was ranked among the lowest of our priorities. Indeed, in some institutions--including the University of Michigan--during the period of serious financial pressure in the early 1980s, we have proposed that our schools of education should be eliminated!

Further, we have perpetuated the smokestack assembly-line approach to education, both in our instructional programs and in our accreditation activities. We have not insisted on the highest standards and best preparation of those we admit to our teacher education programs. And we certainly have not adhered to the highest standards for our own graduates.

Indeed, we have allowed many of our schools of education to become, in effect, diploma mills, placing far more emphasis on quantity than quality of graduates. For example, the three largest teacher factories in the United States are in Michigan--and five of the ten largest teacher colleges are in this state. Last year, Michigan's

schools of education produced over three times as many teachers as there were openings in our schools. It seems clear that our universities simply must step up to the challenge of reducing enrollments and increasing quality in our schools of education if we are to serve public education in Michigan.

Political Minefields

Ross Perot was quoted as saying, "The hardest thing I ever did was the year I spent trying to improve the Texas public schools. It was the hardest, meanest, bloodiest thing I ever tried to do." It is not surprising then that we continue to be paralyzed in our efforts to come to grips with school finance reform or the major structural changes necessary to achieve quality in public education.

One of the great curses of the American experience has been our preference for "quick fixes," simple solutions to complex problems. Too often we go for the slickly marketed patent medicine that not only doesn't provide a cure, but actually aggravates the problem. The classic example of this tendency toward gimmickry is the state lottery, which, in effect, robs from those most in need of state assistance to subsidize those already well supported. Despite the fact that lottery revenues have flowed at ever-increasing rates into the state treasury, state support of K-12 education has languished for many years, in sharp contrast to other state priorities, such as prison construction. Hence, it seems clear that rather than support education, lottery revenues have gone to support other state priorities, such as corrections. Since those participating in the lottery tend to be from the more impoverished parts of our population, it is clear that the lottery is having the perverse impact of transferring funds from those who are deprived to subsidize those who are prosperous.

Possible Solutions

Some General Observations

The reform movement launched by the "A Nation at Risk" report with only modest improvement in the quality of our public schools. Teacher salaries have increased; academic standards have been raised; leaders in both the public and the private sector have become strong advocates for education. Yet we still have not made much progress.

Part of the problem is that we essentially have taken the system we have in place for granted, assuming that it is correct and that all we need do is fix it up a bit. We are only now beginning to recognize that we need more than gradual reform. We need a complete overhaul of our public schools.

But doing this will be a great challenge. Major reform will be strongly resisted from many quarters: by teachers and unions, by administrations and school boards, by politicians, and even by parents. All will feel threatened by the significant changes necessary to restore the quality of American public education. And well they should, since we do not even have agreement on the most general nature of the changes which must occur.

In a survey conducted by the Business Higher-Education Forum, a list of 285 recommendations was compiled from twenty major reports on public education which have appeared in the past several years. Yet of this number, only nine recommendations were supported by five or more of the reports. The Forum noted that "It is little wonder that progress in raising student achievement has been so slow. As

different pilots seize the helm of educational reform, the ship goes around in circles."

The Forum identified several basic principles which must characterize any approach to rebuilding our public schools:

Simplicity: the simpler the goal, the more likely it is to succeed. For example, one might choose a goal by demanding that at the end of the next school year all students should be performing at grade level before promoting them to the next grade. Students not performing at these minimum standards would be provided with appropriate assistance until they do and not promoted until that time.

Systems: Goals must address public education as a system, avoiding piecemeal tinkering and dabbling with one aspect of reform, and considering instead the entire education pipeline. For example, it makes little sense to focus only on primary education without taking into account pre-school, secondary, and higher education.

Values: The debate over the future of our public education system must be recast within a broader framework that stresses not only the education of our youth, but also the clear need for all of our people to learn their way through full and satisfying lives. In working toward this fundamental goal, overarching values should be stressed which reaffirm the dignity of work, restore a sense of national purpose, and recapture our belief in the future.

What We Know

The truth is that we already know a great deal about what needs to be done to improve public education. We know our children need

respect and freedom if they are to learn. We know that we need to see each child as an individual in the context of their needs in and outside the classroom. We know that children cannot learn if they are hungry, or sick, or homeless, or abused.

For too long we have compartmentalized our approach to children and families, treating first one symptom and then another. We have to recognize the needs of the whole child--indeed the impact of the entire social fabric--on the nature of education.

Thanks to the experience of many outstanding schools in this state, we know many of the distinguishing characteristics of successful schools:

- i) freedom from external control and regulation that leaves more power in the hands of the individual school to define its own educational program;
- ii) strong leadership in trying to unite the faculty and students by articulating the clear academic mission for the institution;
- iii) extensive teacher preparation in trying to decide how to teach, what materials to use, and what curriculum to follow;
- iv) respect for the individuality of the student; and, most significantly of all,
- v) extensive parental involvement in the life and the progress of the school.

There is yet another important experience we can draw on for guidance, and it is higher education itself. Recall the view of the

Japanese businessmen who regarded our universities as this nation's greatest asset. What a contrast to primary and secondary education!

For example, while public support of higher education in our own state of Michigan ranks near the bottom (ranking 45th over the past decade), the quality of our universities ranks among the very top nationally--and globally as well. In sharp contrast, public support of K-12 education in Michigan ranks high among the states, and far above the levels in most other nations. Yet, in terms of student achievement, our public schools rank near the bottom.

What is going on here? Why the sharp contrast between the quality of public higher education and K-12 education? Perhaps if we can identify the key factors leading to our success in higher education, then we can draw on these for possible changes in primary and secondary education.

First, it is clear that universities face an intensely competitive marketplace competing for the best students, faculty, funding, not only with other institutions in the state but indeed throughout the nation and the world. This competition provides a certain vitality and energy to our system of higher education.

Second, most universities, whether private or public, benefit from considerable autonomy and independence with respect to programs, financing, and admissions. This independence gives them the capacity to control their own destinies, to develop and implement their own strategies for the future.

Primary and secondary public schools stand in sharp contrast. Students are assigned according to geographical residence. While there has been some recent discussion of the "schools of choice"

concept, this is still largely missing from public education. Collective bargaining contracts give schools little control over teacher quality. And curriculum, resource deployment, and program contract are generally dictated by administrators far removed from the day-to-day responsibilities for teaching.

It could well be that our K-12 schools are so overwhelmed by red tape and bureaucracy and operate in such a weak marketplace (with no real incentives for quality), that they just cannot improve.

What Can We Do?

1. Education for All of America

We must commit ourselves, and our nation, to providing a quality education for all of our citizens. We should accept the premise that every child, regardless of racial, ethnic, or economic background has a right to a quality education, with the objective being at least twelve years of formal education.

2. Education for the 21st --not the 19th century!

Our public schools will only succeed if they replace the basic structure that was put in place fifty years ago to meet the needs of a smokestack economy with a new structure that meets the needs of an information society, an age of knowledge. We need creativity as well as openness to entirely new approaches to learning in the organization, management, and staffing of our schools.

Of course, the first objective is to fill our schools with first-rate teachers and administrators and then set up performance-oriented systems in which the goals for students are clearly specified, and the

rewards go to schools in which students make substantial progress toward those goals.

3. We must make teaching an honored profession once again.

Of course, a key objective must be to fill our schools with first-rate, dedicated teachers and administrators. This goal will require major changes in the way in which we honor and support the teaching profession.

We must recognize the great importance and value of our teachers, reflecting this with better pay, including strong merit components. We must also provide our teachers with far better preparation by requiring all teachers to have education in basic core disciplines such as the liberal arts, sciences, and mathematics and then providing the necessary pedagogy at the graduate level. We must provide our teachers with more control over curriculum in the classroom. We must take teachers out of their current blue collar, assembly line, factory jobs and give them the status, the rewards, and the responsibility and authority characterizing other professions such as law, medicine, and engineering.

We must provide strong incentives for our very best students to consider careers in teaching. This will require a major rethinking of the nature of teacher education. It seems clear that our best students will seek education in the liberal arts (humanities, natural sciences, social sciences, arts) and not in education majors. Hence, we need to develop concentrated programs at the graduate level designed to provide the proper foundation in pedagogy and child development. Further, we must provide strong financial aid incentives for students in these programs.

4. School Management

Education can learn many lessons from business about how to improve the quality of their operation. In a nutshell, we must set up performance-oriented school--schools in which the goals for students, faculty, and administrators are clearly specified, and the rewards go to those schools in which these goals are achieved.

Like business, education must make a firm commitment to quality and build it in in the first place wherever possible. It is clear that we need far higher standards and expectations for our schools. This may require significant structural changes, such as lengthening the school year from 180 days to 240 days (noting that this action would also enable significant increases in teachers' salaries and ease child-care needs in our society).

Our schools must reward success in producing quality. When a system for rewarding quality is in place, they should then allow the people on the firing line, the teachers, to determine how to get the job done. And they simply must eliminate as much of the bureaucracy and as many of the intervening rules and regulations as possible.

The key is to get the incentives to make sure there are appropriate rewards for success and real consequences for failure. If we want quality, we should reward it. If we want student progress, we should reward it. If we want efficiency in the use of public resources, we should reward this too.

5. School Financing

It is clear that even though public education in America is relatively well supported, additional support will be needed to affect the major overhaul that will be necessary. We will need more tax

support for public education--at least through the reform decade of the 1990s. Since education is the real key to our future, it seems appropriate that we place a higher value on it.

In particular, in Michigan, we simply must re-shape our state's priorities to bring a better balance to school finance by seeing education as an investment in the future that deserves a higher priority in relationship to our immediate needs. We simply have to turn the state priorities around and make education far more the centerpiece of our efforts. We have to stop treating the symptoms and summon the will and courage to seek a cure.

It is clear that we must devise alternative tax methods, shifting from an overdependence on property taxes. Indeed, unless our state can find a way to shift from an overdependence on property taxes, we will continue to find strong tax resistance impeding progress in school reform. So too, we must come to grips with serious equity issues, leading to extremes between rich and poor school districts. This inequity continues to result in the least investment going to the state's schools whose students are most in need of quality education.

6. What Higher Education Can Do?

Higher education must awaken to its responsibilities for the quality of public education in America. It is clear that we need to reach out more to school districts--working with them and responding to their needs. We need to work with our public schools to experiment with new techniques, new texts, new methods of instruction, new ways of organizing knowledge, and engaging students in the excitement of experimental problem solving.

An important effort in this respect is the new Partnership for a New American Education. This consortium, consisting of the state's

three research universities--the University of Michigan, Michigan State University, and Wayne State University--is working closely with state government and the private sector to develop in the State of Michigan a model for higher education in America.

Universities must re-examine our priorities and ask ourselves whether we are not partly to blame and whether each of us should not put a much higher priority on preparing talented graduates for primary and secondary education. In this regard, we must pay particular attention to our own schools of education. Traditionally, these units have had the lowest status of any of our academic units on our campuses. During the 1970s and early 1980s our education schools were regarded as a haven for mediocre students and mediocre faculty. It is ironic that if one looks at the reform movement over the last five years, there is very little mention made of our schools of education. It is clear that our universities need to mount much more effective programs to train teachers, principals, and superintendents.

Finally, our universities really can set the pace for public education in America by simply insisting on far higher entrance requirements and communicating these clearly to parents and prospective students. In this way, we may be able to generate the necessary pressures for reforms of our public schools.

7. A Major Cultural Change: Demand Success

Major changes in public perspectives are clearly needed. For example, we should shift public education to a "zero defect" philosophy, in which we simply will not tolerate failure. In essentially every other developed nation drop-outs are effectively eliminated by developing multiple track systems in which students

who do not achieve the highest performance level are given many other options and chances to succeed. As a result, these nations have succeeded in building a highly-skilled and diverse work force at all levels, thereby avoiding the incredible social costs of dropouts and the development of an underclass.

It is clear that our students need to gain a greater sense of participation in the learning process, so that they feel responsible for their education and connected to their school--regarding themselves as a community of common concern. These partnerships must reach beyond the school and strongly involve the parents as well.

8. The Need for a "Sea Change" in Public Attitudes

Part of our problem has to do with the absence of a national consensus on either the magnitude of the problem or on solutions. While the seriousness of the problem may be beginning to dawn on us, we are still looking for cop-outs by blaming others; by complaining that we are already spending too much on public education; or by saying that the needs of the moment are more urgent, and we can deal with public education later when our economy is in better shape. Perhaps this procrastination is the greatest challenge that we must face if we are to build in this nation a system of public education appropriate for our future.

A Plan for Michigan

Michigan's system of public education is massive and complex:

- 562 districts
- \$11 billion/y (local, state, federal)

- 1.5 million students
- 82,000 teachers
- 7,500 administrators
- 65,000 other staff

It should be apparent from these statistics that top-down efforts will be very ineffective in achieving reform of such a massive system. Rather, the key is to activate bottom-up forces at the school level--both from within and from without--which address educational quality.

Over the past several months, I have been a part of a small group of leaders from the business and higher education communities who have been working to develop an action plan for major school reform in Michigan. We begin with a very fundamental premise: *That all children can learn more than our schools--and most parents--currently expect of them.* Then we must develop and implement a set of challenging, coherent, and concrete set of academic standards, empower local schools to meet these standards, and hold the schools accountable for the achievements of their students. We should focus on the key themes:

- management by objectives
- site-based management
- accountability

More specifically, let me suggest the following set of actions:

1. Development of clear objectives

We must develop clear objectives for our schools. In particular, we should develop an ambitious and challenging core curriculum that focuses on higher order thinking and learning. Fortunately, the

Michigan State Legislature has taken action within recent years through Public Act 25 to require this action. Unfortunately, primary responsibility has been assigned to the State Board of Education, and thus far, this body has proposed a core curriculum that is quite weak and conditioned by the status quo. It clearly does not meet the needs of schools for serious and coherent guidance in raising their educational sights. Other states such as California and Connecticut are far ahead of Michigan in this respect.

Here it is important to realize that we cannot be satisfied with local standards, or Michigan standards, or even national standards. We must set true world standards, since our children must be prepared to compete in a knowledge-intensive world society. Further, while educators and parents must be involved in defining these educational objectives, so too must be "consumers" of the products of public education such as business, industry, and higher education.

2. Accurate assessment methods

Second, we must develop accurate methods for assessing student achievement which are closely aligned with the objectives set by the core curriculum. Here we already have a good tool: The Michigan Educational Assessment Program. However, this program is currently underfunded and strongly resisted by many teachers and school districts. In the face of this resistance, it may be necessary to create truly independent assessment agencies outside of government, such as nonprofit corporations governed by boards representative of wide constituencies. However we approach assessment, it is clear that key to the reform effort will be our capacity to tell schools, parents and students, colleges and employers, and the public at large just how our schools are doing in meeting the high standards we must set for them.

3. Moving to site-based management

We simply must break the chains of laws and bureaucracy that bind our schools and allow them to determine their own strategy for achieving objectives. We should shift genuine authority and resources to the school level to provide principals and teachers new flexibility to try new approaches, reallocate resources, adjust staffing, and make their schools work better. Of course, such a shift in authority to the local schools will take control away from state legislators, state officials, local school boards, and central district offices. All of these groups must agree to eliminate existing policies that currently constrain school activities.

Our schools will need strong support if they are to move toward ambitious curricular objectives. To this end, we must clearly improve the preparation of professional staff. Our present system for preparing teachers and administrators, largely based on the "teachers colleges" tradition of the years past, must be overhauled. So too, must more attention be given to curriculum and materials preparation. Administrators must be trained in modern management methods. And we need to establish models of outstanding schools through efforts such as the Michigan Partnership for a New Education and the Kalamazoo Area Math and Science Center.

Further, we must recognize that different areas will need to adopt different strategies to achieve the quality of education our state and nation requires. For example, for some areas, parental choice will be an important feature to create the free market necessary to drive change. In others, the use of alternative teacher certification will be useful in attracting the very best talent into the classroom. Eventually it seems clear that we must move to longer school years, perhaps along the lines of Europe and Asia. And, as I have noted

earlier, we must take strong action to make teaching a true profession once again, including clear rewards for high merit.

Of particularly importance will be addressing the needs of schools serving concentrations of disadvantaged children. We should set as a goal the challenge of bringing all children into the primary school years with solid skills in reading and mathematics. For example, it seems clear that important programs such as Head Start should be fully funded. Further, extended-day kindergarten will prove useful in impoverished neighborhoods. Schools facing the heavy burdens of poverty will require additional public support.

4. Accountability

Finally, after setting clear objectives, implementing accurate assessment measures, and providing schools with the flexibility and support to achieve these objectives, we must insist on accountability. To this end, statewide outcome-based accreditation will prove useful. But perhaps the most important accountability will be provided by employers and higher education.

Business and industry must make student achievement a key component of hiring and advancement decisions. If employers begin to weigh student achievement in K-12 heavily in their hiring, then the message will rapidly permeate public education that there are strong rewards for school performance.

So too, higher education must set clear and high standards for admission to their institutions. Here I should note that within the past month, the Michigan Presidents' Council, comprised of the presidents and chancellors of Michigan's fifteen public campuses, has reached agreement on a set of minimum standards which will go into effect in 1995. To be eligible for normal admission to any of

Michigan's public universities, Michigan high school graduates must have met these requirements. To accommodate those students who have not had the opportunity to achieve these academic objectives, universities will have the flexibility for provisional admission--with the requirements being met through remedial, non-credit instruction on campus.

Finally, it will be necessary to have authority to address those situations--which we hope will be rare--in which schools simply are unable to make progress. For example, there should probably be state authority to take over failing schools. Other actions such as district consolidation, alternative management, and appropriation levels may be necessary to motivate the reform movement in some schools.

5. And what about the "T" word...

It is true that eventually we must overhaul school financing to address the serious inequity which is crippling some school districts. So too must Michigan shift away from its over-reliance on burdensome property taxes to a more balanced tax system. And there seems little doubt that to achieve the necessary reforms--while meeting other urgent needs of the state--at least a temporary tax increase will be necessary.

Yet we have chosen not to recommend any of these actions as first steps. Indeed, experience over the past two decades seems to demonstrate quite convincingly that school reform efforts focused first on an overhaul of school finance mechanisms are doomed to failure. Hence, rather than starting off with an almost certain "big defeat," we suggest a strategy that instead attempts to begin with a series of "small victories." We propose to address first a series of issues relating to school quality. It is our hope that by demonstrating

the will and commitment to undertake a serious school reform agenda aimed at achieving better schools, we can earn the confidence and support of the Michigan taxpayer for later action on school finance reform.

Hence we recommend a plan which addresses the "Q" word before we deal with the "T" word!

The Real Challenge and the Real Solution

Who is to blame for the plight faced by public education in America? Our schools? Our teachers and administrators? Certainly our schools must take strong actions to improve quality and strive harder to operate in a more cost-effective manner. They must be far more willing to embrace change, leaving behind the smokestack, industrial approach to education and the blue-collar approach to their employees, the teachers. Certainly, too, our teachers and administrators must set higher standards and focus their efforts on education. But it is clear that we must not lay the primary blame for the crisis in public education on the schools themselves. In a sense, our schools have fallen victim to our own inertia. They have been crushed under the weight of a bureaucracy that smothers creativity and true accountability.

What about our public officials? Are they to blame? Once again, it seems clear that many of those in elected public positions have given only lip service to the needs of education, responding with rhetoric or gimmicks when pressed. Yet, here, too, we must not assign primary blame for the crisis in public education to those holding elected office. Indeed, it seems clear that the message is beginning to get through to those in a position to act. Our elected

leaders--whether in Washington or in Lansing or our local communities--would like nothing better than to make education their highest priority. They would like to become the education governor or the education party or the education president. They understand clearly the importance of investing in our human resources and are searching for creative ways to improve the quality of our schools and to provide adequate and equitable financial support. But they also face formidable constraints, since in the end the voters get what they ask for--and face it, folks--the electorate today says no more taxes, no more crime, no more cuts in social services or national defense; and our public officials have no choice but to respond.

No, the real finger of blame for the crisis we face in public education should be pointed at you and at me. We are the ones who fail to demand the highest quality in our educational institutions. We are the ones who steadfastly resist a tax base adequate to support both our needs and desires and provide an adequate level of support for quality education in the state. We are the ones who block any effective efforts to achieve equitable financing of education in Michigan. We are the ones who are generally too busy to help our own children in their studies or participate in their activities.

We have become consumers of the future, not investors in it.

Something has changed in America. I was brought up in a long tradition in which one's first responsibility was to one's children. My parents took great interest in my study activities. They scrimped and saved for my college education. My wife and I have done the same for our own children. The education of our children always came first, before a new house, a fancy car, an exotic vacation. Obviously, most of you in this audience agree with me about the importance of education, since many of you have also made hard choices and sacrifices.

But what about most of our fellow citizens? What has happened to us as a nation? Today's generation seems different. Perhaps it is that the "me" generation of the 1960s has grown up into comfortable yuppiehood. Perhaps our dilemma is in part due to a generation that has vigorously defended its rights, but failed to step up to its responsibilities. While it is clear that the public gives lip service to education, in the privacy of the voting booth they tell our public officials something quite different: to invest elsewhere--by building roads, or prisons, or football stadiums, rather than educating our youth.

I must say that I find the attitude that we have taken as a society toward our most precious resource, our youth, is both callous and alarming. I, for one, simply cannot accept the excuse that we cannot afford this investment in the educational opportunities we offer our children. To be sure, the immense social needs for welfare assistance, medical care, prisons, and all of the other programs that drain our tax dollars are compelling. However, by choosing to meet these needs with resources taken away from our system of public education, rather than through reforms in our tax structure or political system, we have in reality mortgaged our future by withdrawing the educational opportunities from our youth. We seem to have forgotten the commitments that past generations of citizens have made to provide us with outstanding educational opportunities. Instead we choose time and time again to deny these to our children and their descendants.

But there is a different way to look at it. The real issue here is not the magnitude of our investment in education, it is rather the priority that we as a community, as a state, and as a nation place on investing on our children. To put it bluntly, we should feel both embarrassed

and ashamed for robbing our youth, indeed our future, to pay for our own excesses.

But suppose we take the cynical view that the challenge of responsibility and stewardship will simply not be a compelling enough argument to establish the importance of investing in human capital. There is an even more compelling argument, one suggesting a strong vested interest.

If we do not invest in the youth of today, then it is clear that they will not become a sufficiently productive work force to keep this nation strong and prosperous in the years ahead. To make this more apparent, let me note that by the year 2000 there will be only three workers to support each retiree, and one of these will be a minority. Therefore, unless we make the investments today, you and I are not going to going to have much to look forward to once we reach the point where we must be supported by this society.

But there is an even more cynical way to look at the challenge of public education. That is to simply evaluate it as one of a series of alternative investments. From this perspective, which do you believe makes more sense: to invest \$3,000 per year to keep a pre-school child on track, to invest \$5,000 a year to achieve a strong K-12 education, to invest \$10,000 per year to sustain a strong college education, or to invest \$25,000 a year to put someone in jail--and then lose the income and taxes paid by this person as a productive member of our society? The answer seems obvious, albeit frequently ignored!

The Need for a New Coalition

Today both our state and our nation face serious challenges that will clearly determine our future prosperity and well-being: the

challenge of pluralism, the challenge of participation in a global community, the challenge of the age of knowledge, and the challenge of change itself. As we approach a new century, our state--just as our nation--is undergoing a profound and difficult transition to a new economic order. Our fabulously prosperous industrial economy is rapidly disappearing, and our challenge for the decade ahead is to take the steps necessary to build a new knowledge-based economy which will be competitive in a world marketplace.

Let there be no mistake about this. **This will not be an easy transition.** Further, the outcome is still very much in doubt.

It seems clear that as we prepare for the age of knowledge, our ability to sustain the strength of our state and our nation, to achieve quality of life for our citizens, will be determined more than any other factor by how we develop, nurture, and educate the most precious of our resources, our people.

If we are to respond, we simply must reorder the priorities of this state and this nation. We must shift away from the temptation to address only the needs and desires of the moment. And instead, we must begin to make some of the key investments necessary for the long term, the investments for our people and our children.

Our educational system is complex and decentralized, with the primary responsibility located at the state and local level. There is no simple solution. It is clear we must push on all fronts to improve the quality of public education. We must weave a strategy of many strands, a strategy that places existing programs in a larger context that establishes a clear sense of direction, develops leadership for the task, and assures continuity of effort. Above all, we must be consistent and persevere.

It is clear that the challenge of public education should not be just the worry of local communities, or state government, or universities. It is everybody's concern! Each of us must step forward and unite to face the challenge of the future. We must work together to build new coalitions, including both the public and private sectors, state government, education, business, and labor, to develop an agenda appropriate to secure the future of our children, our state, and our nation.

Michigan, indeed America, continues to be blessed with abundant natural resources and a people of great strength. But the writing is on the wall. If we are to prosper in an age of knowledge that is almost certainly our future, we must join together now to restore both our public and our personal investments in education, in our people and their ideas, in our children, and in our future.