

A Heritage Foundation Conference

**How Business Can Save Education:
A State Agenda For Reform**

Philadelphia, Pennsylvania

April 24, 1991

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Introduction

Business and Education: Understanding Reform

Corporations in the United States spend an estimated \$40 billion annually on education programs, employee training, and remedial education. Faced with this heavy cost, much of it to compensate for deficiencies in the school system, a rising number of firms have begun to enter the public policy debate over reforming America's schools. Such issues as school spending, accountability for results, educational choice, and national testing today are discussed almost daily in corporate boardrooms and meetings of local business leaders. No longer are business leaders content to write checks to help fund public education and to leave the matter of education policy to the educators. Instead they are demanding a say in the education reform debate, and demanding results for their billion dollar investment.

To give guidance to businesses in their efforts to achieve reform, The Heritage Foundation decided in 1989 to launch a project to bring together experts from the business and public policy communities to review the reforms being tried in various parts of the country. After an initial conference in Washington, D.C., Heritage decided to take its show on the road, and inaugurated its "How Business Can Save Education" conference series in November 1990 in Dallas, Texas. Subsequent conferences were held in 1991 in Philadelphia, Pennsylvania, and in Detroit, Michigan.

At each conference, the first session is devoted to helping the audience of local business leaders understand the complicated business of the public education system, and challenging conventional wisdom. Is money the answer? How do we know when a child is learning? What is the role of the teacher, the principal, and the parent in alternative proposals? Answers to these and other questions are critical if business is to take part in the education reform debate, and if business leaders are to help improve the education of tomorrow's work force.

These sessions analyzing the nature of public education and the principles of reform have proved to be among the most popular at each conference. In them, four nationally recognized experts examine the causes of America's school education crisis and suggest ways in which business leaders can help solve that crisis.

As a service to the business community The Heritage Foundation has transcribed the first session of the conference held on April 24, 1991, in Philadelphia.

Other materials available from the Heritage Foundation on business and education include *Can Business Save Education*, an audio tape containing highlights of the 1989 inaugural conference, and *Business/Education Insider*, a monthly newsletter on education reform issues of interest to business leaders. Information on these and other items may be obtained from Jeanne Allen, Manager, Center for Educational Policy at The Heritage Foundation. Telephone: (202) 546-4400.



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**How Business Can Save Education:
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Dr. John Chubb

Ten years ago, President Reagan appointed a blue ribbon commission, a very distinguished panel, to study the problems in education in the United States. It was the National Commission on Excellence in Education. On that panel were a good number of the nation's business leaders, and foremost among that Commission's concerns was the declining competitive position of the United States in world markets and the role that education played in the declining competitiveness of the American economy.

The Commission worked for more than a year, and in 1983 published a report entitled *A Nation at Risk*, which was hailed as a landmark report in educational reform. And, indeed, the rhetoric of *A Nation at Risk*, was extremely powerful. It warned of a "rising tide of mediocrity" that threatened to swallow this country's living standards and economic future if something was not done immediately. It indicated, moreover, that the situation was so dire that if a foreign power had done to us what we had done educationally to ourselves we would immediately declare war on that foreign power.

There wasn't just rhetoric in the report, however. It also presented some shocking statistics about the competitiveness of American education. It showed, for example, that in math and science the United States had slipped not to the second or third place in world competition, but rather the twelfth or thirteenth place, trailing every major nation in these areas. And the report recommended a long list of changes in American education, changes that critics said were so expensive that they could never be brought about.

This report sent shock waves throughout both the educational system and the political system, and reformers throughout the 1980s jumped into action and worked very hard to bring about the changes that were recommended in *A Nation at Risk*.

With the publication of *A Nation at Risk*, and its reception in the early 1980s, business was satisfied. The Commission had produced a penetrating report. It had recommended aggressive action, and now reformers were leaping into action. Everyone believed that a no-nonsense approach had been recommended and had been undertaken.

Well today, almost ten years later, it is clear that while much of what *A Nation at Risk* recommended has been carried out, the results have been very, very disappointing. I think most of us would agree that the nation is still at risk.

How could this happen? What went wrong? What are we to do about it? That is really why we are all here today, and that is what this conference is all about—trying to understand what went wrong, and what we can do now as we enter the 1990s.

You are going to hear a number of different ideas about what did go wrong, and about what needs to be done. But I think all of us probably would agree with one thing. It is this: *A Nation at Risk* really underestimated the severity of the problem. *A Nation at Risk* really did not get to the root of the problem. And despite all the rhetoric, *A Nation at Risk* really did not in fact recommend revolutionary reform.

What *A Nation at Risk* failed to recognize is that America's education problem or problems go way back. In the late 1950s the country was panicking about math and science achievement because of the achievements of the Soviets. It was not Japanese competition that we were concerned about in the late 1950s, it was Soviet competition.

In the middle 1960s the principal concern in education shifted to the cities, and to the horrible inequities in American education: the great gap between the achievement of whites and of blacks, and the differences in the conditions of schools attended by blacks and whites. In response to this concern we had major programs emanating from Washington: the programs of the War on Poverty and the Great Society.

The problems go way back, and *A Nation at Risk* really did not appreciate that. Another thing it did not appreciate was that this country actually has gone through many major waves of reform. The recommendations of *A Nation at Risk* were not the first major efforts to try to solve the education problem.

When the Soviets launched *Sputnik* in the late 1950s, for example, there was aggressive effort to try to upgrade math and science achievement, and in the 1960s aggressive efforts to try to address the problems of urban education. In the 1970s, too, there were countless experiments, school by school, with such things as individualized instruction, open classrooms, and a host of innovations in instruction and curriculum.

A Nation at Risk simply did not appreciate how long we had been trying to reform the schools, and how many times we had tried, and failed. As a consequence, it recommended reforms that were basically the same as reforms of the past. It really should come as no surprise, therefore, that it did not succeed.

If reform in the 1990s is going to be any different from reform in the 1960s and the 1970s and the 1980s, we have to understand why reform in the past has failed, and we have to be willing to entertain new ideas. If business is going to make a difference in education in the 1990s, business must be willing to reevaluate conventional approaches, and it must be willing to listen seriously to new ideas, as radical as those ideas may seem.

Last summer the Brookings Institution published a book that I co-authored with a Stanford colleague, Terry Moe. The writing of the book, *Politics, Markets and America's Schools*, was motivated basically by our concern with the failure of past reform. We wanted to know how the government, from Washington to the state level to the local level, could work so hard for so long and yet have so little success in solving the problem. That is what the book is about.

Our explanation is that the reason government has not solved the education problem is that in a very important respect the government has become a major part of the problem. What we found is that our system of public education, which tries to run the schools from the top down through a system of political and bureaucratic control, has created an environment in which the qualities that we most want in schools have a difficult time developing.

We found that politics and bureaucracy tend to stifle parent involvement in schools. They tend to discourage schools from having a clear focus on academics. They tend to discourage professionalism in teachers. They tend to discourage leadership on the part of principals. They tend ultimately to undermine school performance.

As we see it, the reason education reform has not worked is that it has never addressed the system itself—it has always addressed the school. We have had school reform after school reform, but no reform of the system in which those schools function. If the politics and bureaucracy that govern our schools are a large part of the problem, and we do not change those things, we are not going to make any progress.

We concluded our book, therefore, by recommending a restructuring of American public education, a restructuring to change it from a system that is controlled primarily from the top down, through politics and bureaucracy, to a system that is controlled more from the bottom up, through competition and choice. We recommended a system of educational choice as a way of turning around the country's poor educational performance.

Now that is a radical idea, at least by traditional standards. But it deserves to be heard because it does not recommend simply more of the past—it calls for something fundamentally different, and it has a very different probability of success.



Dr. Eric Hanushek

The main message I am going to give is a simple one: business as usual with respect to education is a real recipe for disaster. To make this case I am going to go carefully through some of the evidence we have about the operation of schools to show why we have to do something quite different.

From an economist's standpoint, education clearly has been an increasingly important contributor to the growth and productivity of the U.S. economy. This is for two reasons. First, there has been a substantial increase in the amount of school people get, how far they go in school. And second, this has been further enhanced by the fact that at least through the mid-sixties there were regular and systematic increases in the quality of the schooling everybody received. So that these two forces combined to help produce a steadily better work force that contributed substantially to productivity growth in the U.S.

What has happened in recent times is that there has been a very noticeable slowdown in the rate of growth of educational attainment in the population. The rapid growth in quantity of schooling received has leveled off, and at the same time we have been hit with what appears to be systematic and substantial declines in the quality of schooling given.

Now I am not claiming that this is an explanation of the productivity slowdown in the last ten years. Productivity growth went from two percent per year through the sixties to one percent a year going into the seventies, and has essentially been zero percent a year in the last decade. That is not a result of changes in schooling. It is the result of a variety of other forces that are not completely understood. But this lack of growth of educational attainment and quality is going to start hitting the work force with increasing intensity as the segment of the population affected by it moves into the labor force and becomes the dominant element there. So unless something happens, we can expect far poorer productivity growth in the future than we have seen in the past.

The other element in the equation is that the typical solution we think about for schooling just does not look as though it is going to work. There tends to be in the back of the American mind the analogy of putting a man on the moon. With a bit of effort and a national commitment, we did have people walking around collecting rocks on the moon. We have run an experiment along these lines in education.

I brought a graph to show you that we have indeed run such an experiment. What I have done is plot out two series for the period 1966 to 1989. The first is inflation-adjusted school expenditures

per pupil. That line keeps going up to the right. Real expenditures per student more than doubled in that period.

Next to that is the only series we have that records some measure of performance over the same period, which are the SAT scores. This series begins by rising, then falling off, making a little bit of a comeback at the beginning of the 1980s, and then essentially remaining constant or declining since then.

But there are, of course, a variety of reasons why you might want to quibble with these data, such as that the SAT tests might not be representative of the whole school system, or that expenditures might be going up for reasons somewhat unrelated to what we are trying to do in schools. For that reason I want to give you what I think is much better information.

Since the mid-sixties there have been around 200 studies looking at the relationship between the inputs to schools, the resources spent on schools, and the performance of students. These studies tell a consistent and rather dramatic story. Let me give you the three principal results that I draw from these.

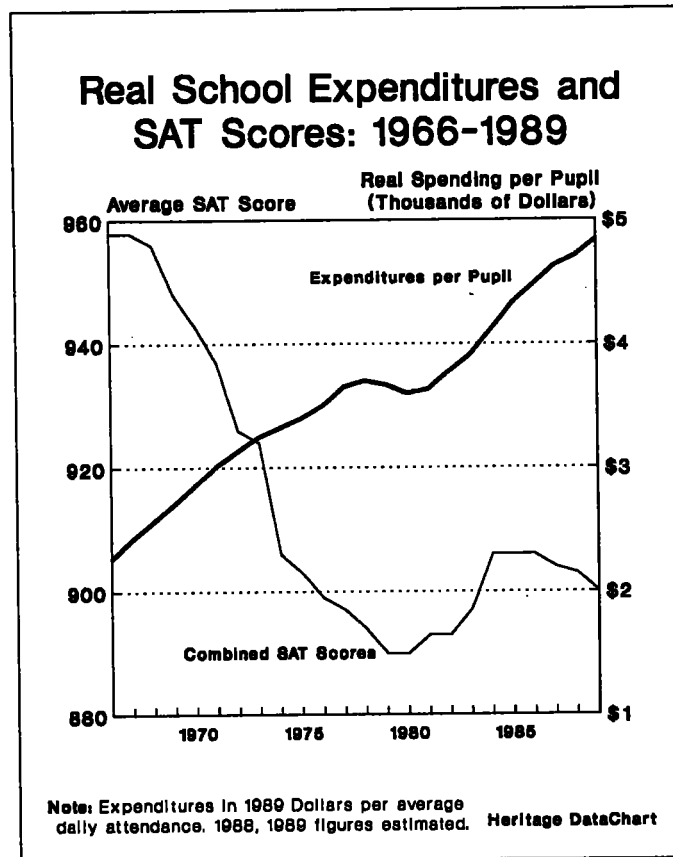
Result 1 is that there is no systematic relationship between expenditures on schools and student performance.

Result 2 is that there is no systematic relationship between the major ingredients of instructional expenditures per student—chiefly teacher education and teacher experience, which normally drive teacher salaries, and class size—and student performance.

Now it is important to concentrate on those because the first wrong response to what to do about schools is to lower class size or to buy more experienced teachers, or send people off for master's degrees. And we have run that experiment. We have dramatically changed the size of our classes. Over the period it has fallen from around 26 to around 19 students per teacher in the U.S. More than half of the teachers have master's degrees. Experience has been growing over time, too. Yet these factors have not shown any systematic relationship to performance of students.

Result 3 is that the lack of relationship between expenditures and these simple ingredients or measures of schools and performance does not mean that there are no differences among teachers and schools. There are large ones.

Why these results? In my mind the reason for the big problem we face is that in the current system there are absolutely no incentives for performance. John Chubb says that politics and bureaucracy are stifling schools. As an economist, I say that there are no incentives. We are saying basically the same thing—there are no forces driving the system to produce higher achievement. And there is no way in the current scheme to line up those forces to move systematically in the right direction.



I have been talking to business people where the importance of incentives is so obvious and pervasive that most business discussions do not even include them. In education they are equally the key, yet they just are not there.

How do we get the incentives right? The key to incentives that are going to work in my view, is very simple. You have to focus directly on the schools. You cannot, however, design school policies from Harrisburg or Washington that specify exactly what inputs to use in the schools, as we have tried to do in the past. Indeed, we have a variety of regulations, in every state of the union, that specify such things as maximum class size and a checklist of credentials a teacher must have to be allowed to teach. These just have not worked.

Now a variety of alternative approaches will be talked about today. They range from merit pay, to magnet schools, to a variety of other things like public school choice or tax credits and vouchers. All of these have the one common denominator: they try in some way to relate resources directly to performance. They use different mechanisms, but the idea is the same.

Now there may be some disagreement among the panel members, but my interpretation of the evidence is that, while the objective is clear on what we should do, there is very little evidence to suggest which, if any, of the alternative approaches will work. And in my opinion, the details are everything. We can agree on the overall broad concepts. For example, take choice—a popular term these days. The term choice conveys about the same information as saying that I just ate in New York City. There are a wide variety of places to eat in New York City. Some of them are good. Some of them are okay. Some of them are dreadful. And that is my view of what we will see in a number of these choice plans. Conceptually the idea of choice in schools has appeal, but the actual outcomes from any choice plan will depend very much on the details of the plan.

Now what is the role for business? I think the primary role for business is to make clear to both schools and students just what is being demanded of them. I do not think this has been clear in the past.

I have what might be a caricature of the interaction today between businesses and schools. First, businesses moan about the quality of students. Once the moaning has gone far enough, businesses decide they will “take action” and “get involved.” And this usually means providing a variety of extras to schools, from computers to guest lecturers.

Now I do not mean to denigrate these activities, or say they should be stopped. Some schools are quite dependent upon such things and probably get some benefit from them. But the overall message is that as businesses we are quite happy with the current organization of schools and what is going on. We will just increase the inputs a little bit, and that somehow will lead to better results. I think this is incorrect. Business as usual, again, is a recipe for disaster.

The things I think businesses productively can do are:

First, businesses can think of working to establish hiring incentives for students that are directly related to their performance in the schools. It is not now done very much, to my knowledge. That approach would do two things. It would give a message to schools as to what exactly business was looking for. And it would provide incentives for students who today do not have many. Most students are not interested in going to an Ivy League school, or a highly selective school, so grades in high school do not make any difference. Nobody currently ever knows about or cares about grades.

Second, businesses know a lot about incentive schemes to get people to do a variety of things that are productive and useful. Helping to design incentive schemes for schools is important and could be helpful.

Third, businesses can have a real impact on politicians and other people involved with restructuring the schools, and can use their influence to demand some very different forms of organization.

Let me end by speaking a little bit about the Bush *America 2000* plan. The first point is that I think you should give whole-hearted support to the development of various measurement instruments as included in the plan. One of the elements of the plan is to develop national testing of some sort that would allow us to develop performance standards. It is time for businesses to start asserting themselves to insure measurements that relate more directly to the skills that are of concern in business.

Second, business leaders should support the proposals to open up and restructure schools through the choice recommendations in the Bush plan. In line with that, as I said before, I think businesses actually have to help in this structuring activity, lending a hand and starting to talk about various management structures and other ideas that work. And you should be prepared for and expect a lot of failures when things are opened up. Not everything will work well, but you should not take that as evidence that choice is not working. Just as a report on one poor meal in New York City should not be interpreted as a general failure of restaurants in New York City.

Third, something less emphasized in the Bush proposal than I would like is the recognition that we have a learning problem here. We have to learn how to operate good schools, and so we have to push to have real experimentation in the medical sense of the reports you get in the *New England Journal of Medicine*—true experiments where you have control groups.

Finally, I think you should be skeptical about anything that says, "Let there be 535 points of light," in the sense of putting a new school in each of 535 locations. Anything that comes in lot sizes of 535 should be suspect.



Mr. Denis Doyle

I am pleased to be in Philadelphia. I am reminded, however, of one of the intervening cities on the way up here, Baltimore, and its sage H.L. Menken. He was fond of saying that for any complex problem there is a solution which is simple, direct, and wrong. I will, however, submit to you today that there is a simple and direct solution—which in this case is right—to the question before us.

What is the situation now with the business role? The answer is not yet completely in, but the news is not terribly encouraging. As John Chubb suggests, over a decade of ferment has produced lots of sound and fury and not an awful lot of concrete results. A cynic or a pessimist might conclude that the business role has been one which has been characterized more by smoke than light and forward movement.

I like to characterize this as the Paul Revere phase—the phase of sounding the alarm and consensus building—and I am quite optimistic about the nineties. So long, that is, as the business community does one thing, and one thing only: it must apply to the schools the same standards it applies to itself. I want to run through some of these standards to give you an idea of what I mean. This is not just empty rhetoric, but real reform agenda. I hope John will view this as supporting and reinforcing his work, as well as the analytic work that Eric and Herb have done.

The issues fall across a broad spectrum, all of which will eventually lead to the topic of choice. But I will mention choice last, because I think it is instrumental. It is a device to achieve the other objectives, and it knits together in a seamless web all the various component parts.

There really is no necessary order to the colors of this spectrum—they ought to be produced together—if we are to succeed. Clearly we must begin to think seriously about measuring and reporting results. That lies at the heart of any successful business. It is the single most distressing failure on the part of schools. We as the public, we as parents, and we as taxpayers have no real way to understand—except subjectively and intuitively—what the value-added of schooling is. That, indeed, is the principal attraction in many private schools, because there, at least, the value-added is quite candidly and freely offered in subjective terms. You make the decision as the consumer. You make judgments as a parent or as a student about the quality of the education you are receiving, and you can, in fact, develop some real sense of what it is worth. That, however, is clearly an aspect of choice simply unacceptable in a system designed to produce mass education. So we need better information, more of it, and of higher quality.

You must as well think about things like pay for performance, or if that is too strong a dose of medicine for the schools, then something as simple and as obvious as creating an environment in which teachers and administrators are paid on the basis of market sensitivity. Many business leaders are astonished to learn that schools, which claim to be professional institutions, are in fact blue collar operations in which teachers are paid as blue collar workers. Payment is on the basis of seniority and alleged academic accomplishments. Courses in basket weaving, undirected master's degree study activities, and courses in bird watching will advance teachers on the salary schedule as rapidly as longevity does. Teachers throughout the nation are paid on uniform salary schedules. Once this was viewed as a great reform, and indeed it may have been at the time. We began to pay secondary school teachers what we paid elementary school teachers, rural teachers what we paid urban teachers, black teachers what we paid white teachers, and female teachers what we paid male teachers. But this is a reform that has outlived its usefulness. It is clearly the case today that schools have got to begin to think about paying on the basis of market availability. That is the simplest, the most direct, and the most obvious solution to the problem posed by the insufficiency in numbers and quality of mathematics and science teachers.

What's sauce for the goose is sauce for the gander, however. If five years from now we have a shortage of kindergarten teachers, we should give them some additional pay. Market sensitivity is a simple lesson from the business world that would make a profound difference in schooling. It would break the lockstep of the salary schedule which has a suffocating effect on a whole institution nationally.

Think for a moment of how odd and bizarre it is to have a so-called profession in which the best are paid what the worst are paid, and the worst are paid what the best are paid, without reference to performance or scarcity.

Business also has a very clear sense of quality. The "quality process" has meant the transformation of a number of American businesses, and it is clearly the secret of Japanese commercial success in this country.

You will remember that when Japanese goods first entered American markets shortly after the Second World War, "Made in Japan" was tantamount to an admission that it was junk. But now, in industry after industry, the Japanese have set the world pace, not only in design and quality control, but also in execution, delivery, marketing, and service. No longer do we buy Japanese products because they are cheaper. We buy them because they are better. They are better because they attend to quality as a continuous process, a lesson that schools must clearly bring to bear.

We need to use the term common to most successful corporations today—to meet "customer requirements." In this case, of course, the customers are our students.

We need as well to borrow a concept from business known as "benchmarking," an idea wholly foreign to most schools, but an idea that potentially is enormously important. Organizations en-

gaged in benchmarking first compare themselves with their competition. Philadelphia schools should look at St. Louis, and Milwaukee, and Chicago, and Los Angeles. But they should also compare themselves to those with whom they are not in direct competition: fancy exclusive suburbs. But perhaps more important, and more to the point in 1991, they should compare themselves with the competition around the world—Bonn, Taipei, and Tokyo. That is where the education action is. That is where the work force is being trained, framing the knowledge industries of the future. If we fail to understand that as a society, then we are going to miss an extraordinarily important opportunity.

Benchmarking also means something else wholly foreign to schools, and that is to compare yourself to other institutions altogether. Xerox, for example, compares itself with L.L. Bean for its capacity to provide very short turnaround time to customers and provide inventory control. L.L. Bean is the exemplar. But some day L.L. Bean will be shoved to the side by some other organization, and they then will be the appropriate source of comparison.

Schools, too, should think about how for-profit and not-for-profit organizations meet their obligations to their clients and to their employees.

Most important, of course, is the dread word to many educators—choice. Choice will force schools to expose themselves to competition. And I choose those words with some care, because the benefits of competition are expressly designed for consumers and workers; not for managers, not for owners, and, for sure, not for suppliers.

Competition does help, of course, those who are successful managers and owners. They are able to take profits and enjoy the benefits of successful operation. But they run tremendous risks. They run the risks of failure. They run the risks of income loss, which is quite substantial. But the benefits and purposes of competition are not to make life easier for those who own the product, but rather for those who consume and work. It does lots of wonderful things in the economic realm. It weeds out the unfit.

The economist Schumpeter's great insight is what he called "creative destruction." That, in fact, is the great power of markets, of capitalism. It is the only system we know of that will do away with inappropriate and dysfunctional organizational forms. As all of you know, the command economies of the East, and even the socialist economies of the West, inevitably find that the failing industry is the one that gets more and more public attention. The shipyards of the Strathclyde River in Scotland, under Labour governments, became notorious as the world's most inefficient shipyards. The more inefficient they became, the more money was poured into them.

Another irresistible image for American schools is collective farming. If you have abundant sun, bountiful rain, wonderfully endowed soil, easy access to markets, and workers and farmers who are reasonably well trained, then collective farms can produce a little bit. Those that do not have such endowments do not produce much at all, and it is only the noncollective farms that keep the food flowing in most of these countries.

That is, I think, an apt image for most of our public schools. The suburban public school is well endowed with children of native ability, talent, and some motivation. It is endowed with the educational equivalence of sunlight and rainfall and good soil, so they can do well in spite of the limitations of the system. But they do not do nearly as well as they should, particularly if we take into account notions like benchmarking. Think of how well these youngsters must do if we are to compare ourselves with the best that the Japanese, the Chinese, the French, the Germans, and the English are doing.

Now this is by way of introduction. We are introducing the notion of restructuring, which has become the buzzword of the late eighties and early nineties. Every school district in the nation is talk-

ing about it. Most of them have taken the nomenclature to their bosoms, and they treat it as if it is something they are about to do momentarily. Some will even assert they have done it.

Well, I would urge a very great degree of skepticism as you listen and read about restructuring in most of our schools. The simple reason is that restructuring is about as painful a process as an organization can go through. And I cannot—at least in my reading of the literature—find any examples of organizations which have voluntarily done it just to feel good. Monopolies do not do it. A business does it, not because it is more virtuous or cleverer in any fundamental sense; it does it because it is restructure or die.

Restructuring painfully changes the relationships in the organization. It frequently results in major personnel shifts and often major series of firings. It changes the reliance upon technology. It changes relationships with customers, with owners, and with suppliers. Restructuring is about as difficult a process as a business can go through. And schools, notwithstanding all their brave talk to the contrary, will not restructure unless they have to.

To come full circle, if business is to see schools change and improve, you must apply to them the same standards you apply to yourself. You must demand diversity. You must demand specialization of function among schools, and division of labor. You must demand accountability, expressed in measures that make sense to you and to the public at large.

And you must think about certain things that you do very well. Not all American businesses provide education for their employees, but most do. I would like briefly to give you an illustration of what business can bring to bear on schools in a direct pedagogical and educational sense, not just in structural and external activities.

The biggest source of education and training in the country outside of the massive public school system is provided by business and industry. The numbers are very difficult to get, because no one collects them in any systematic way. The incentives to provide them are not very high, so we are going on radar in terms of numbers. But we do have some very good numbers on a few industries and a few subsets within industries. The example for which we have the best data is IBM.

IBM spends about \$1 billion a year in direct costs for employee education and training. Every employee in IBM, from the CEO down, is trained regularly and routinely in settings which are harmonious, interesting, and satisfying. This runs the full range from lectures to self-paced learning on fancy computers.

That \$1 billion includes the cost of salaries for 7,000 full-time faculty that work for IBM—all of them work on a merit pay basis, I might add. It includes the cost of accommodations, textbooks, and materials for the IBM employees who are in training. But it does not include the cost of salaries paid while these people are being trained on their two-week stints. If you add salaries in, according to a former head of training, the number is closer to \$2 billion.

Now IBM does this for a reason. Not to feel good. IBM doesn't do it because it is fun. Not as a perquisite. Not as a respite for overworked people. It's not something which is lightly entered into. IBM does it because IBM is convinced that it pays. It is an investment in long-term productivity. It provides dividends to the corporation over time. It is as important to the corporation as it is to spend money on R&D or market research.

That is, I think, a commentary on the nature of the economy of which we are all now a part. We are in a human capital-intensive economy in which a scholar at the Rand Corporation reports that the growing gaps in incomes is attributable to the increased capacity of educated workers to contribute wealth to the economy. Workers who know more get paid more because they can do more.

It is probably no accident, if the numbers are right, that 1989-1990 is the year in which the nation's annual human capital investment in the aggregate surpassed our aggregate physical capi-

tal investment. According to Roger Vaughn, an economist formerly with the Rand Corporation, aggregate human capital investment of \$600 billion surpassed physical capital investment last year by \$10 to \$20 billion. It is a new world we live in, a new world of very different demands and very different opportunities.

Let me close with an illustration. The IBM school, which is clearly a favorite of mine as you can tell, does one thing which is not surprising. It tests its students all the time. It also tests them very easily and rapidly because everything is computerized—as you would expect at IBM. The results are available at the podium to the lecturer or instructor, and he or she can find out as the day unfolds how much information is being learned by the students.

Now when a certain critical mass of students demonstrates through the little display panels that they are not getting the information, an assumption is made that is quite the opposite of the assumption ordinarily made in a public school. If information in a public school fails to flow, the presumption is that something is wrong with the student. In the IBM school the presumption is that something is wrong with the teacher and the lesson plan. And they go back and they learn how to do it right, so the student can learn.

In short, then, there are dozens and dozens of lessons that the business community has to offer. Enormously important information is there to impart, and I would simply urge those in the business community to take off their gloves. Be courteous where it is appropriate, but expect the schools to meet the same type of standards that you expect of yourselves and your suppliers and your competitors. With that as a lesson to the schools, the likelihood of significant change in American education will be greatly increased.



Mr. Herbert Walberg

The United States has 2.2 million teachers and 40 million students in its schools. By some estimates it is the largest industry in the United States, spending some \$300 billion annually. Yet the school industry, if I may use that term, has very poor productivity by international standards. It spends more per student than any other major industrialized country in the world, yet its students consistently rank among the worst on tested achievement among the affluent countries of the world.

As John Chubb pointed out earlier, the famous report, *A Nation at Risk*, first made the mediocrity of our system more widely known to Americans in 1983. But recent compilations of test scores indicate that our educational performance has not improved. Roughly 20 million students went through high school since the report was written in 1983 without getting an improved education.

For this reason I think we are ending a period of educational reform, as the term has been used, and entering a period of educational restructuring, or more radical and fundamental reforms. Educational consumers—by this I mean business and civic leaders, citizens and parents—are demanding evidence of learning value for money spent. In this respect, the views of educators and those they serve increasingly have diverged. A recent national poll shows that 86 percent of school superintendents give American schools a rating of good or very good, while 77 percent of business executives rated the scores fair to poor.

One third of the superintendents, but 92 percent of the business executives, thought that Japan has a better school system. Both groups recognize that we have very serious family problems in the United States and low motivation of students and teachers as underlying problems, but substantially higher percentages of executives cited low achievement standards, poorly trained teachers, and a lack of emphasis on basic skills as the major problems in this country.

Careful observational studies have illuminated the specifics of the instructional and educational process that lead to our problems. The important work of Harold Stevenson at the University of Michigan shows that American students do not lack ability when they begin school. They rank with other students in Asia. But careful studies show that with each grade level, from first to second and so on, American students fall further and further behind. By the end of fifth grade the best American classes were below the worst Japanese and Taiwanese classes. This suggests inefficiencies in our social system, but more particularly inefficiencies in our education system.

The steady progress of Asian students is due to a fast, unrepentive curriculum, parental support and encouragement at home, and belief in hard work rather than luck or talent as the chief determiner of success and learning. Japan in particular is an interesting country to contrast to the U.S. because it beats other countries around the world on two important criteria. The first is egalitarianism—something we traditionally have professed to be the goal of education in the United States. One aim of ours, in furtherance of egalitarianism, is to try to graduate all students from high school or secondary school. Well, we actually graduate about 76 percent. In Japan the figure is 96 percent.

And significantly, Japanese graduates of secondary schools also beat European in quality as well as in quantity. Japan typically has led all affluent countries of the world in achievement scores, or in how well the students can do on standardized tests in chemistry, mathematics, physics, and other critical subjects.

Just as Japan is an important competitor of the United States and Europe in business, it is also an astounding competitor and world leader in its education system. Japan attains the spectacular results I have just mentioned at very low costs. Among fifteen affluent countries for which data are available, Japan ranked last in per-student spending, from kindergarten through twelfth grade. Aside from Switzerland, the United States spent the most, and we have some of the worst achievement scores in the world, typically coming in at the bottom. Japan gets the best results at the lowest cost, and the United States gets nearly the worst results at nearly the highest cost.

Given these astounding comparisons and very poor U.S. results, considerable research has sought to identify experiences that influence achievement and related outcomes, especially those that are alterable by practical interventions. This research shows that the amount and quality of instruction, as well as extramural experiences are the chief determinants of educational outcomes.

Superior instructional techniques include such things as mastery learning, cooperative learning, computer-assisted instruction, and special teaching methods in the fields of mathematics, science, reading, and writing. Extensive learning time and parental involvement also promote success. Ironically, the better methods which do not necessarily cost more money are not necessarily the ones that are being used. And again, there is a certain irony here, because much of the research on what makes for effective education has been done in the United States, but the results are not necessarily being practiced here.

If we look at our chief competitor, Japan, we see there are some key factors that seem to be associated with its outstanding performance in elementary and secondary education. Japanese society and the schools, for instance, emphasize hard work and tie significant rewards to school success. Eric Hanushek pointed out earlier how important that is, and something business could do something about by giving more incentives for prospective employees to do well in school.

In addition, Japanese parents are engaged with the education of their children from infancy through high school. Schools are clear about their purposes. Japanese schools have a long school year and educators and parents make constructive use of within-school time and outside-school time.

