

OVERSOLD & UNDERUSED

COMPUTERS IN THE CLASSROOM

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LARRY CUBAN

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Larry Cuban

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For Barbara

**Who with patience and love
has taught one slow learner
the geography of the heart**

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INTRODUCTION: REFORMING SCHOOLS THROUGH TECHNOLOGY

School reform again, again, and again. If any aspect of schooling in the past two centuries has escaped the reformers' passion for improvement, I have not found it. From ineffective teaching to unhealthy lunches, from insufficient parental involvement to inadequate science curricula, from mixing grade levels in classrooms to building schools without walls—no aspect of schooling has evaded the reformers' scrutiny. Few people in these professions remain unemployed for long.¹

Bashing schools and teachers is common fare in the rhetoric of reform. Advocates for change must mobilize supporters, and they do it by dramatically calling attention to school problems. Yet, paradoxically, like most Americans, the very same people who denigrate current education practices also profess an enduring faith in the power of schools to make a better society while placing individual students on an escalator toward financial success. Like most Americans, reformers believe that education is a solution for both individual failures and larger social problems. "Just see wherever we peer into the first tiny springs of the national life," Andrew Carnegie wrote in 1886, "how this true panacea for all the ills of the body politic bubbles forth—education, education, education."²

When public kindergartens were introduced in the late nineteenth century, reformers hailed them as an alternative to the harsh conditions that prevailed in urban schools, particularly in those that immigrant children attended. These parents often waited until their children were seven or older before enrolling them in school. But with no adult at home during the day, these children frequently found their way into the street, seeking odd jobs or begging. The age-graded school began in grade 1 and was unforgiving to young children, they claimed, who were taught in large groups and moved lockstep from one lesson to another regardless of how quickly or slowly they learned. Many young children failed. Reformers saw kindergartens for 5- and 6-year-olds as a way to save urban children from both the chaos of street life and the regimentation of public schools, while helping immigrant families learn the practical skills of becoming American.

The first generation of kindergarten teachers were public-spirited women trained in the formal methods of the German educator Friedrich Froebel. Equipped with instructional materials that Froebel had designed, these teachers spent a half-day with 5- and 7-year-olds in classrooms. There, lessons on personal cleanliness, nutritious foods, and good manners blended with drawing, learning the alphabet, and playing with blocks. After the children went home for lunch, kindergarten teachers visited families in their crowded homes and helped mothers with everything from preparing healthy meals to filling out citizenship papers. The first urban kindergarten teachers were *de facto* social workers.³

Within a half-century, the kindergarten had become a fixture in public elementary schools. But in becoming a part

of the established system, kindergartens changed. No longer were teachers required to make home visits. They became state-credentialed professionals whose job was largely to ensure that children were prepared academically and socially for the first grade. Not surprisingly, this program set the stage for another generation of early childhood reformers, who criticized kindergartens for having become academic bootcamps. To this new wave of activists at the end of the twentieth century, the kindergartens, like so many other school reforms, had themselves become the problem rather than the solution.⁴

Who are these people continually agitating for school reform? In the late nineteenth century, those who fought regimented schooling and promoted kindergartens came from political elites and urban middle-class families. During the early days of the civil rights movement in the 1950s, those who opposed racial segregation in schools were poor and middle-class southern blacks and whites, joined with top federal officials. Today, diverse coalitions of concerned parents and activists, decrying the toxic conditions of urban schools, have banded together to lobby federal and state policymakers to send government checks—vouchers—to parents to spend on their children's education as they see fit. The voucher movement has comprised middle-class Catholic parents, Orthodox Jewish rabbis, wealthy Republicans, academics, corporate executives, and black activists in low-income urban communities. Charter school advocates, magnet school promoters, and homeschoolers also draw from an equally diverse population who want a different kind of schooling for children than many public schools currently offer. School reformers are, in a word, us.

Why, then, do so many of us turn to our public schools as,

paradoxically, both the source of and the solution for society's worst ills? The answer is that most Americans believe fervently in the power of education to change lives. Schools are not sectarian, like churches. They are not exclusive, like IBM or General Electric. As public agencies go, they are singularly visible. And they are universally available. Consequently, time and time again, countless other social ills, from urban poverty, crime, and drug abuse to wars and economic depression, have led reformers to the schoolhouse door.

The Progressive movement at the beginning of the twentieth century, the civil rights movement in the 1950s and 1960s, and the sustained drive since the 1970s toward U.S. supremacy in the global economy—to cite three obvious instances—have reverberated throughout American schools and universities.⁵ And as these examples illustrate, most popular educational reforms begin with finger-pointing. In the early 1980s, when top public officials and corporate leaders worried that America was losing its economic primacy, wave after wave of unremitting criticism washed over K–12 schools and higher education. In the pungent words of the 1983 report, *Nation at Risk*, by the National Commission on Excellence in Education: “Our once unchallenged preeminence in commerce, industry, science, and technological innovation is being overtaken by competitors throughout the world . . . The educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a Nation and a people.” Reform-minded public officials and corporate leaders faulted high schools for turning out low-performing graduates unprepared for a fast-changing automated workplace. “If only to keep and improve on the slim competitive edge we still retain in world markets, we must dedicate ourselves to the reform of



Joey, Katie and Todd will be performing your bypass.

Before you know it, these kids will be doctors, nurses and medical technicians, possibly yours.

They'll need an excellent grasp of laser technology, advanced computing and molecular genetics. Unfortunately, very few American children are being prepared to master such sophisticated subjects.

If we want children who can handle

tomorrow's good jobs, more kids need to take more challenging academic courses.

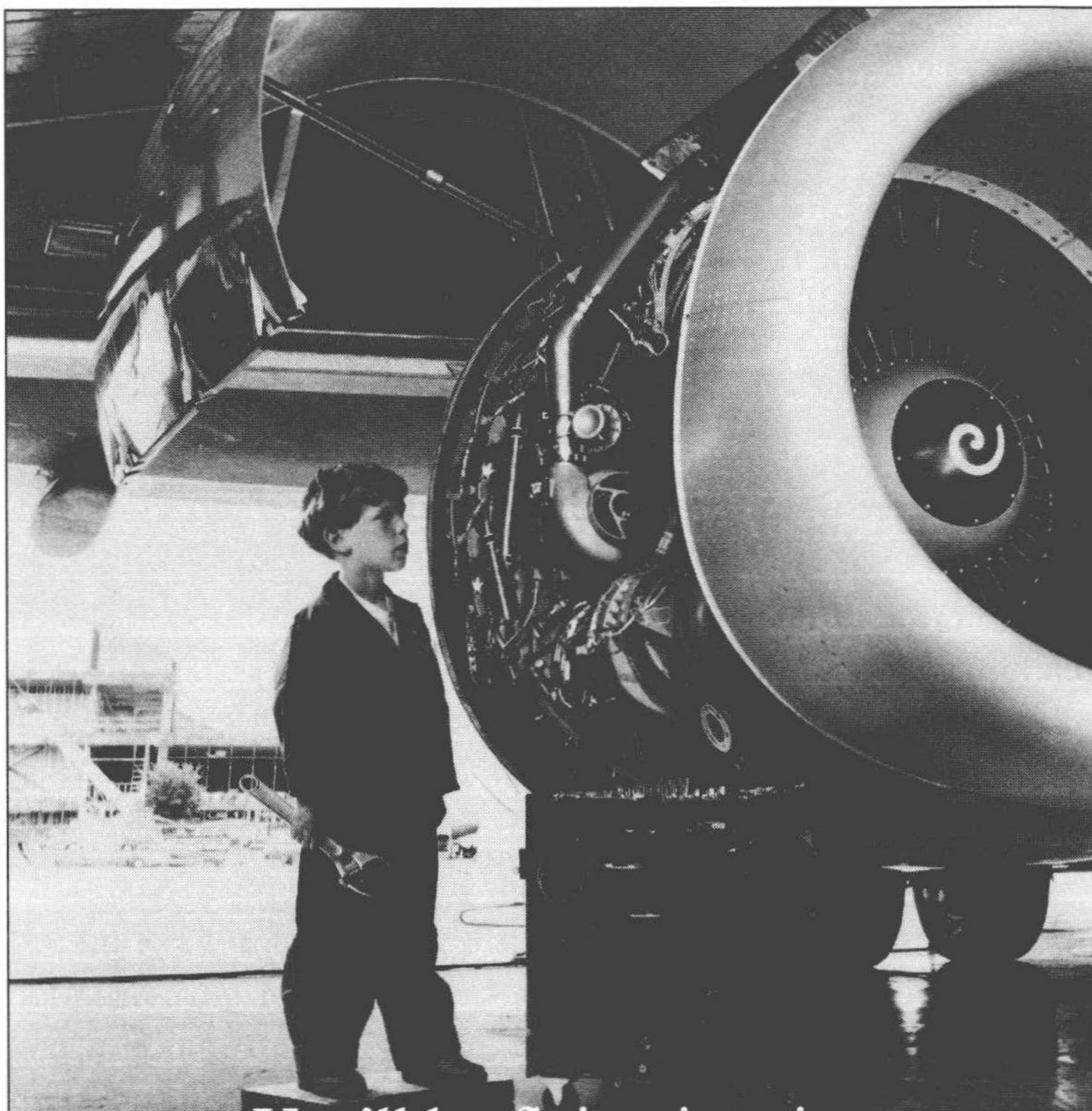
To find out how you can help the effort to raise standards in America's schools, please call 1-800-96-PROMISE.

If we make changes now, we can prevent a lot of pain later on.

The Business Roundtable
U.S. Department of Education
National Governors' Association
American Generation of Teachers
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You'll be flying in a jet maintained by Tommy.

When Tommy grows up, he'll be an aircraft mechanic. Perhaps he'll work on a jet that you fly in some day.

By then, the job will require an advanced knowledge of chemistry, physics, and trigonometry. Unfortunately, very few kids are being prepared to master such sophisticated subjects.

If we want children who can handle

tomorrow's good jobs, more kids need to take more challenging academic courses.

To find out how you can help the effort to raise standards in America's schools, please call 1-800-96-PROMISE.

If we all pitch in and help, America will get where it needs to go.

The Business Roundtable
U.S. Department of Education
National Governors' Association
American Generation of Teachers
The National Alliance of Business



EDUCATION EXCELLENCE PARTNERSHIP

our educational system for the benefit of all—old and young alike, affluent and poor, majority and minority. Learning is the indispensable investment required for success in the ‘information age’ we are entering.”⁶

In the wake of the report, calls were heard from coast to coast for stiffer graduation requirements, tougher tests, greater teacher accountability, school restructuring, more advanced technology in classrooms, vouchers, better undergraduate education, and a general improvement in school efficiency. Yet neither the subsequent rise in test scores, the increase in numbers of students taking math and science courses, nor the economic boom of the 1990s silenced these doomsayers. The changes were inadequate.⁷

School activists in the 1990s, drawn largely from corporate, academic, and governmental elites—and endorsed, for the most part, by parents—concentrated on solving the nation’s economic problems through education reform. They justified public school and university reforms as necessary to help the nation compete in a global economy and provide marketable information-age skills to future employees. Popular as it has been among parents and policymakers, this economic justification for schooling, coupled with faith in technical solutions for complex problems, has overwhelmed the civic and moral purposes for schooling children and youth that dominated throughout most of U.S. history.⁸

For almost two centuries, Americans expected that the public school—the *common* school, as it was initially called—would build citizens, promote equality, cultivate the moral and social development of individual students, and bind diverse groups into one nation. Nineteenth- and twentieth-century reformers

understood that education—like anything else—has an economic side. The Massachusetts reformer Horace Mann, for example, had no difficulty in arguing for tax-supported public schools in the 1830s on grounds that graduates would bring to their employers literacy skills that would enhance their businesses. But Mann never argued, as current reformers do, that education is a servant of the economy. Nor did he ever urge schools to operate as businesses. Tax-supported public schools had a civic and moral mission that far exceeded the narrow economic aims of for-profit private corporations.

These earlier reformers assumed that tax-supported public schools were purveyors of common democratic values such as equality, fairness, toleration of differences, and justice. The inculcation of these values would ensure the survival of the Republic and the stability of the social order. Mid-nineteenth-century public schools and private colleges were expected to furnish the mind, strengthen moral character, and prepare citizens to discharge their civic responsibilities. Education was one and the same with the public good.

The end of the Civil War presented Abraham Lincoln's successors with an unprecedented opportunity to test these assumptions about education. In the conquered South, the monumental task was to transform four million ex-slaves into literate citizens. The federal government provided free public schooling for millions of black children and adults in the former Confederacy, thus forging new linkages between federal action and locally controlled schools. Race, citizenship, and equality came together for the first time in the public schools. This experiment in schooling ex-slaves for social democracy lasted only a decade, however. The issue of a federal role in schooling and educating

poor, minority children was left unaddressed for another century.⁹

Social reforms in the early 1900s made explicit the proposition that public schools and higher education serve a fundamentally economic purpose. Businesslike efficiency and vocational education in secondary schools and colleges were seen as critical to preparing students for work in an industrial economy that was then competing with Great Britain and Germany. Meeting the soaring health and social needs of immigrant children also increased taxpayers' and parents' expectations of what their locally controlled schools and public-spirited new universities could do for the community and for each individual child. Public schools and universities were expected to Americanize newcomers and produce vocationally skilled graduates who could fill administrative posts and technically demanding manufacturing jobs in the ever-expanding industrial workforce. By the middle of the twentieth century, the social, civic, economic, and individualistic purposes of both public schooling and higher education were firmly in place. The growing conviction that a high school diploma was essential for each son and daughter to climb the socioeconomic ladder added to the fervor with which white, black, and foreign-born parents embraced the mission of public schools.¹⁰

During the Cold War, racial segregation and international economic competition came under the umbrella of problems that could be solved, in part, through education, extending beyond public high schools. For Americans, faith in universal schooling had become gospel. Schooling was a panacea for any disease at either the national or individual level.¹¹ But as the twentieth century drew to a close, poverty, social stratification,

and racial inequities remained intractable. With increased immigration from Latin America and Asia and fierce scrambling for global market share, the purpose and performance of schools and universities again came under close scrutiny.

As this brief jaunt through U.S. educational history underscores, schools have served a number of broad social purposes in our democratic society. “You cannot have a democratic—indeed, civilized—community life,” Neil Postman reminds us, “unless people have learned how to participate in a disciplined way as part of a group.” The things children learn in school that matter in a democratic society were summed up cleverly by Robert Fulghum in his best-selling book *All I Really Need to Know I Learned in Kindergarten*: share what you have, play fair, don’t hit, put things back where you found them, and clean up your own mess. David Labaree synthesized the social purposes that education serves into three goals that Americans seek from their tax-supported public schools: democratic equality, social efficiency, and social mobility. He argued that the goals of social efficiency (schools serving broad societal needs) and social mobility (individuals striving to be financially and socially successful) have merged to become the rationale for economic competitiveness—and in the last two decades have trumped democratic equality.¹² Now, as public schools and higher education are being asked to build the human capital that many believe is essential to sustaining technological innovation and global competitiveness, these other historic and broader civic purposes appear to be no more than distractions.¹³

Since the mid-1980s, private sector management has become the model for solving the problems of schools and universities. Educational activities are “downsized,” “restructured,”

and “outsourced.” School buses, lunchrooms, and stadiums carry advertisements for corporate sponsors. Logos of major corporations dot school corridors. In kindergartens, high schools, and universities, banner ads run across every computer screen wired to the Internet.¹⁴ But perhaps more striking is the recent commodification of high school and college credentials. Employers buy high school diplomas and college degrees in the workplace, and for eighteen-year-olds a high school diploma has become as much an economic necessity as soda or gasoline. College graduates are even more attractive. Getting a bachelor’s degree now seems to be within the grasp of any high school graduate willing to spend four years taking courses (on a campus or delivered on a home computer) and piling up debts. Students and employers alike now shop for schools and credentials as they would any other product sold in the marketplace.¹⁵

Critics of this wholesale embrace of market competition ask: Is everything educational for sale? Is being a good citizen about nothing more than being a good consumer? What about the “common good” the founders of public schools and universities so fervently sought to foster? In the first decade of the twenty-first century, these questions about public and private interests, tensions between the common good and individual preferences, have yet to be asked openly by candidates for public office, corporate leaders, school administrators, practitioners, and university presidents. Instead, what dominates media and policymakers’ discussions of education is that schools achieve success on business-style assessments such as standardized test scores (de facto profit sheets) through business-inspired technical means.¹⁶ And no tool is better suited for those economic ends than computers. Securing more and better computer tech-

nologies for schools, so that they can operate more efficiently and faster and support better teaching and learning, has been touted by corporate leaders and public officials as a splendid way to reform schools according to the market-driven agenda of the past two decades.

REFORMING SCHOOLS THROUGH NEW TECHNOLOGY

Since the early 1980s, a loosely tied national coalition of public officials, corporate executives, vendors, policymakers, and parents have included in their reform agendas the common goal of creating more access to new technologies in schools. In this book, when I use the phrase “new technologies” I refer to the “hard” infrastructure of wiring, computers, software applications, and other equipment, including laserdisk players, overhead-mounted presentation machines operated from a keyboard, digital cameras, and so on. New technologies also include the “soft” infrastructure of technical support for all of this equipment, including scheduled replacement and professional development of teachers and administrators. When I refer to “old technologies” I mean textbooks, blackboards, overhead projectors, television, and videocassettes.

Some promoters within the coalition seek profit from selling equipment and software in the school market. Others seek a swift solution to thorny problems that historically have crippled education. Still others see an electronic revolution in classroom teaching practices. And some promoters, committed to social justice, want to ensure that poor and minority children will not be left behind in the rush for technological expertise. From many different directions, then, coalition advocates have