

A Nation At
Risk (1983)

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Honorable T. H. Bell
Secretary of Education
U.S. Department of Education
Washington, D.C. 20202

April 26, 1983

Dear Mr. Secretary:

On August 26, 1981, you created the National Commission on Excellence in Education and directed it to present a report on the quality of education in America to you and to the American people by April of 1983.

It has been my privilege to chair this endeavor and on behalf of the members of the Commission it is my pleasure to transmit this report, *A Nation at Risk: The Imperative for Educational Reform*.

Our purpose has been to help define the problems afflicting American education and to provide solutions, not search for scapegoats. We addressed the main issues as we saw them, but have not attempted to treat the subordinate matters in any detail. We were forthright in our discussions and have been candid in our report regarding both the strengths and weaknesses of American education.


The Commission deeply believes that the problems we have discerned in American education can be both understood and corrected if the people of our country, together with those who have public responsibility in the matter, care enough and are courageous enough to do what is required.

Each member of the Commission appreciates your leadership in having asked this diverse group of persons to examine one of the central issues which will define our Nation's future. We especially welcomed your confidence throughout the course of our deliberations and your anticipation of a report free of political partisanship.

It is our collective and earnest hope that you will continue to provide leadership in this effort by assuring wide dissemination and full discussion of this report, and by encouraging appropriate action throughout the country. We believe that materials compiled by the Commission in the course of its work constitute a major resource for all persons interested in American education.

The other Commissioners and I sincerely appreciate the opportunity to have served our country as members of the National Commission on Excellence in Education, and on their behalf I remain,

Respectfully,


David Pierpont Gardner
Chairman

Members of the National Commission on Excellence in Education

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Introduction

Secretary of Education T. H. Bell created the National Commission on Excellence in Education on August 26, 1981, directing it to examine the quality of education in the United States and to make a report to the Nation and to him within 18 months of its first meeting. In accordance with the Secretary's instructions, this report contains practical recommendations for educational improvement and fulfills the Commission's responsibilities under the terms of its charter. ✓

The Commission was created as a result of the Secretary's concern about "the widespread public perception that something is seriously remiss in our educational system." Soliciting the "support of all who care about our future," the Secretary noted that he was establishing the Commission based on his "responsibility to provide leadership, constructive criticism, and effective assistance to schools and universities." ✓

The Commission's charter contained several specific charges to which we have given particular attention. These included:

- assessing the quality of teaching and learning in our Nation's public and private schools, colleges, and universities;
 - comparing American schools and colleges with those of other advanced nations;
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- studying the relationship between college admissions requirements and student achievement in high school;
 - identifying educational programs which result in notable student success in college;
 - assessing the degree to which major social and educational changes in the last quarter century have affected student achievement; and
 - defining problems which must be faced and overcome if we are successfully to pursue the course of excellence in education.

The Commission's charter directed it to pay particular attention to teenage youth, and we have done so largely by focusing on high schools. Selective attention was given to the formative years spent in elementary schools, to higher education, and to vocational and technical programs. We refer those interested in the need for similar reform in higher education to the recent report of the American Council on Education, *To Strengthen the Quality of Higher Education*.

In going about its work the Commission has relied in the main upon five sources of information:

- papers commissioned from experts on a variety of educational issues;
- administrators, teachers, students, representatives of professional and public groups, parents, business leaders, public officials, and scholars who testified at eight meetings of the full Commission, six public hearings, two panel discussions, a symposium, and a series of meetings organized by the Department of Education's Regional Offices;
- existing analyses of problems in education;
- letters from concerned citizens, teachers, and administrators who volunteered extensive comments on problems and possibilities in American education; and

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- descriptions of notable programs and promising approaches in education.

To these public-minded citizens who took the trouble to share their concerns with us—frequently at their own expense in time, money, and effort—we extend our thanks. In all cases, we have benefited from their advice and taken their views into account; how we have treated their suggestions is, of course, our responsibility alone. In addition, we are grateful to the individuals in schools, universities, foundations, business, government, and communities throughout the United States who provided the facilities and staff so necessary to the success of our many public functions.

The Commission was impressed during the course of its activities by the diversity of opinion it received regarding the condition of American education and by conflicting views about what should be done. In many ways, the membership of the Commission itself reflected that diversity and difference of opinion during the course of its work. This report, nevertheless, gives evidence that men and women of good will can agree on common goals and on ways to pursue them.

The Commission's charter, the authors and topics of commissioned papers, a list of the public events, and a roster of the Commission's staff are included in the appendices which complete this volume.

A Nation At Risk

Our Nation is at risk. Our once unchallenged preeminence in commerce, industry, science, and technological innovation is being overtaken by competitors throughout the world. This report is concerned with only one of the many causes and dimensions of the problem, but it is the one that undergirds American prosperity, security, and civility. We report to the American people that while we can take justifiable pride in what our schools and colleges have historically accomplished and contributed to the United States and the well-being of its people, 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. What was unimaginable a generation ago has begun to occur—others are matching and surpassing our educational attainments.

If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war. As it stands, we have allowed this to happen to ourselves. We have even squandered the gains in student achievement made in the wake of the Sputnik challenge. Moreover, we have dismantled essential support systems which helped make those gains possible. We have, in effect, been committing an act of unthinking, unilateral educational disarmament.

Our society and its educational institutions seem to have lost sight of the basic purposes of schooling, and of the

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high expectations and disciplined effort needed to attain them. This report, the result of 18 months of study, seeks to generate reform of our educational system in fundamental ways and to renew the Nation's commitment to schools and colleges of high quality throughout the length and breadth of our land.

That we have compromised this commitment is, upon reflection, hardly surprising, given the multitude of often conflicting demands we have placed on our Nation's schools and colleges. They are routinely called on to provide solutions to personal, social, and political problems that the home and other institutions either will not or cannot resolve. We must understand that these demands on our schools and colleges often exact an educational cost as well as a financial one.

On the occasion of the Commission's first meeting President Reagan noted the central importance of education in American life when he said: "Certainly there are few areas of American life as important to our society, to our people, and to our families as our schools and colleges." This report, therefore, is as much an open letter to the American people as it is a report to the Secretary of Education. We are confident that the American people, properly informed, will do what is right for their children and for the generations to come.

The Risk

History is not kind to idlers. The time is long past when America's destiny was assured simply by an abundance of natural resources and inexhaustible human enthusiasm, and by our relative isolation from the malignant problems of older civilizations. The world is indeed one global village. We live among determined, well-educated, and strongly motivated competitors. We compete with them for international standing and markets, not only with products but also with the ideas of our laboratories and neighborhood workshops. America's position in the world may once have been reasonably secure with only a few exceptionally well-trained men and women. It is no longer.

The risk is not only that the Japanese make automobiles more efficiently than Americans and have government subsidies for development and export. It is not just that the South Koreans recently built the world's most efficient steel

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Skilled
intelligence

mill, or that American machine tools, once the pride of the world, are being displaced by German products. It is also that these developments signify a redistribution of trained capability throughout the globe. Knowledge, learning, information, and skilled intelligence are the new raw materials of international commerce and are today spreading throughout the world as vigorously as miracle drugs, synthetic fertilizers, and blue jeans did earlier. 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 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.

Our concern, however, goes well beyond matters such as industry and commerce. It also includes the intellectual, moral, and spiritual strengths of our people which knit together the very fabric of our society. The people of the United States need to know that individuals in our society who do not possess the levels of skill, literacy, and training essential to this new era will be effectively disenfranchised, not simply from the material rewards that accompany competent performance, but also from the chance to participate fully in our national life. A high level of shared education is essential to a free, democratic society and to the fostering of a common culture, especially in a country that prides itself on pluralism and individual freedom.

For our country to function, citizens must be able to reach some common understandings on complex issues, often on short notice and on the basis of conflicting or incomplete evidence. Education helps form these common understandings, a point Thomas Jefferson made long ago in his justly famous dictum:

I know no safe depository of the ultimate powers of the society but the people themselves; and if we think them not enlightened enough to exercise their control with a wholesome discretion, the remedy is not to take it from them but to inform their discretion.

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Part of what is at risk is the promise first made on this continent: All, regardless of race or class or economic status, are entitled to a fair chance and to the tools for developing their individual powers of mind and spirit to the utmost. This promise means that all children by virtue of their own efforts, competently guided, can hope to attain the mature and informed judgment needed to secure gainful employment, and to manage their own lives, thereby serving not only their own interests but also the progress of society itself.

Over half the population of gifted students do not match their tested ability with comparable achievement in school.

Indicators of the Risk

The educational dimensions of the risk before us have been amply documented in testimony received by the Commission. For example:

- International comparisons of student achievement, completed a decade ago, reveal that on 19 academic tests American students were never first or second and, in comparison with other industrialized nations, were last seven times.
- Some 23 million American adults are functionally illiterate by the simplest tests of everyday reading, writing, and comprehension.
- About 13 percent of all 17-year-olds in the United States can be considered functionally illiterate. Functional illiteracy among minority youth may run as high as 40 percent.
- Average achievement of high school students on most standardized tests is now lower than 26 years ago when Sputnik was launched.
- Over half the population of gifted students do not match their tested ability with comparable achievement in school.
- The College Board's Scholastic Aptitude Tests (SAT) demonstrate a virtually unbroken decline from 1963 to

1980. Average verbal scores fell over 50 points and average mathematics scores dropped nearly 40 points.

- College Board achievement tests also reveal consistent declines in recent years in such subjects as physics and English.
- Both the number and proportion of students demonstrating superior achievement on the SATs (i.e., those with scores of 650 or higher) have also dramatically declined.
- Many 17-year-olds do not possess the "higher order" intellectual skills we should expect of them. Nearly 40 percent cannot draw inferences from written material; only one-fifth can write a persuasive essay; and only one-third can solve a mathematics problem requiring several steps.
- There was a steady decline in science achievement scores of U.S. 17-year-olds as measured by national assessments of science in 1969, 1973, and 1977.
- Between 1975 and 1980, remedial mathematics courses in public 4-year colleges increased by 72 percent and now constitute one-quarter of all mathematics courses taught in those institutions.
- Average tested achievement of students graduating from college is also lower.
- Business and military leaders complain that they are required to spend millions of dollars on costly remedial education and training programs in such basic skills as reading, writing, spelling, and computation. The Department of the Navy, for example, reported to the Commission that one-quarter of its recent recruits cannot read at the ninth grade level, the minimum needed simply to understand written safety instructions. Without remedial work they cannot even begin, much less complete, the sophisticated training essential in much of the modern military.

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These deficiencies come at a time when the demand for highly skilled workers in new fields is accelerating rapidly. For example:

yeah, like
cash registers →

- Computers and computer-controlled equipment are penetrating every aspect of our lives—homes, factories, and offices.
- One estimate indicates that by the turn of the century millions of jobs will involve laser technology and robotics.
- Technology is radically transforming a host of other occupations. They include health care, medical science, energy production, food processing, construction, and the building, repair, and maintenance of sophisticated scientific, educational, military, and industrial equipment.

Analysts examining these indicators of student performance and the demands for new skills have made some chilling observations. Educational researcher Paul Hurd concluded at the end of a thorough national survey of student achievement that within the context of the modern scientific revolution, "We are raising a new generation of Americans that is scientifically and technologically illiterate." In a similar vein, John Slaughter, a former Director of the National Science Foundation, warned of "a growing chasm between a small scientific and technological elite and a citizenry ill-informed, indeed uninformed, on issues with a science component."

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But the problem does not stop there, nor do all observers see it the same way. Some worry that schools may emphasize such rudiments as reading and computation at the expense of other essential skills such as comprehension, analysis, solving problems, and drawing conclusions. Still others are concerned that an over-emphasis on technical and occupational skills will leave little time for studying the arts and humanities that so enrich daily life, help maintain civility, and develop a sense of community. Knowledge of the humanities, they maintain, must be harnessed to science and technology if the latter are to remain creative and humane, just as the humanities need to be informed by science and technology if

they are to remain relevant to the human condition. Another analyst, Paul Copperman, has drawn a sobering conclusion. Until now, he has noted:

Each generation of Americans has outstripped its parents in education, in literacy, and in economic attainment. For the first time in the history of our country, the educational skills of one generation will not surpass, will not equal, will not even approach, those of their parents.

It is important, of course, to recognize that the average citizen today is better educated and more knowledgeable than the average citizen of a generation ago—more literate, and exposed to more mathematics, literature, and science. The positive impact of this fact on the well-being of our country and the lives of our people cannot be overstated. Nevertheless, the average graduate of our schools and colleges today is not as well-educated as the average graduate of 25 or 35 years ago, when a much smaller proportion of our population completed high school and college. The negative impact of this fact likewise cannot be overstated.

Hope and Frustration

Statistics and their interpretation by experts show only the surface dimension of the difficulties we face. Beneath them lies a tension between hope and frustration that characterizes current attitudes about education at every level.

We have heard the voices of high school and college students, school board members, and teachers; of leaders of industry, minority groups, and higher education; of parents and State officials. We could hear the hope evident in their commitment to quality education and in their descriptions of outstanding programs and schools. We could also hear the intensity of their frustration, a growing impatience with shoddiness in many walks of American life, and the complaint that this shoddiness is too often reflected in our schools and colleges. Their frustration threatens to overwhelm their hope.

What lies behind this emerging national sense of frustration can be described as both a dimming of personal expect-

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tations and the fear of losing a shared vision for America.

On the personal level the student, the parent, and the caring teacher all perceive that a basic promise is not being kept. More and more young people emerge from high school ready neither for college nor for work. This predicament becomes more acute as the knowledge base continues its rapid expansion, the number of traditional jobs shrinks, and new jobs demand greater sophistication and preparation.

On a broader scale, we sense that this undertone of frustration has significant political implications, for it cuts across ages, generations, races, and political and economic groups. We have come to understand that the public will demand that educational and political leaders act forcefully and effectively on these issues. Indeed, such demands have already appeared and could well become a unifying national preoccupation. This unity, however, can be achieved only if we avoid the unproductive tendency of some to search for scapegoats among the victims, such as the beleaguered teachers.

On the positive side is the significant movement by political and educational leaders to search for solutions—so far centering largely on the nearly desperate need for increased support for the teaching of mathematics and science. This movement is but a start on what we believe is a larger and more educationally encompassing need to improve teaching and learning in fields such as English, history, geography, economics, and foreign languages. We believe this movement must be broadened and directed toward reform and excellence throughout education.

Excellence in Education

We define "excellence" to mean several related things. At the level of the *individual learner*, it means performing on the boundary of individual ability in ways that test and push back personal limits, in school and in the workplace. Excellence characterizes a *school or college* that sets high expectations and goals for all learners, then tries in every way possible to help students reach them. Excellence characterizes a *society* that has adopted these policies, for it will then be prepared through the education and skill of its people to respond to the challenges of a rapidly changing world. Our Nation's people

and its schools and colleges must be committed to achieving excellence in all these senses.

We do not believe that a public commitment to excellence and educational reform must be made at the expense of a strong public commitment to the equitable treatment of our diverse population. The twin goals of equity and high-quality schooling have profound and practical meaning for our economy and society, and we cannot permit one to yield to the other either in principle or in practice. To do so would deny young people their chance to learn and live according to their aspirations and abilities. It also would lead to a generalized accommodation to mediocrity in our society on the one hand or the creation of an undemocratic elitism on the other.

Our goal must be to develop the talents of all to their fullest. Attaining that goal requires that we expect and assist all students to work to the limits of their capabilities. We should expect schools to have genuinely high standards rather than minimum ones, and parents to support and encourage their children to make the most of their talents and abilities.

The search for solutions to our educational problems must also include a commitment to life-long learning. The task of rebuilding our system of learning is enormous and must be properly understood and taken seriously: Although a million and a half new workers enter the economy each year from our schools and colleges, the adults working today will still make up about 75 percent of the workforce in the year 2000. These workers, and new entrants into the workforce, will need further education and retraining if they—and we as a Nation—are to thrive and prosper.

The Learning Society ✓

In a world of ever-accelerating competition and change in the conditions of the workplace, of ever-greater danger, and of ever-larger opportunities for those prepared to meet them, educational reform should focus on the goal of creating a Learning Society. At the heart of such a society is the commitment to a set of values and to a system of education that affords all members the opportunity to stretch their minds to full capacity, from early childhood through adulthood, learning more as the world itself changes. Such a society has as a basic

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foundation the idea that education is important not only because of what it contributes to one's career goals but also because of the value it adds to the general quality of one's life. Also at the heart of the Learning Society are educational opportunities extending far beyond the traditional institutions of learning, our schools and colleges. They extend into homes and workplaces; into libraries, art galleries, museums, and science centers; indeed, into every place where the individual can develop and mature in work and life. In our view, formal schooling in youth is the essential foundation for learning throughout one's life. But without life-long learning, one's skills will become rapidly dated.

In contrast to the ideal of the Learning Society, however, we find that for too many people education means doing the minimum work necessary for the moment, then coasting through life on what may have been learned in its first quarter. But this should not surprise us because we tend to express our educational standards and expectations largely in terms of "minimum requirements." And where there should be a coherent continuum of learning, we have none, but instead an often incoherent, outdated patchwork quilt. Many individual, sometimes heroic, examples of schools and colleges of great merit do exist. Our findings and testimony confirm the vitality of a number of notable schools and programs, but their very distinction stands out against a vast mass shaped by tensions and pressures that inhibit systematic academic and vocational achievement for the majority of students. In some metropolitan areas basic literacy has become the goal rather than the starting point. In some colleges maintaining enrollments is of greater day-to-day concern than maintaining rigorous academic standards. And the ideal of academic excellence as the primary goal of schooling seems to be fading across the board in American education.

Thus, we issue this call to all who care about America and its future: to parents and students; to teachers, administrators, and school board members; to colleges and industry; to union members and military leaders; to governors and State legislators; to the President; to members of Congress and other public officials; to members of learned and scientific societies; to the print and electronic media; to concerned citizens everywhere. America is at risk.

We are confident that America can address this risk. If the tasks we set forth are initiated now and our recommendations are fully realized over the next several years, we can expect reform of our Nation's schools, colleges, and universities. This would also reverse the current declining trend—a trend that stems more from weakness of purpose, confusion of vision, underuse of talent, and lack of leadership, than from conditions beyond our control.

The Tools at Hand

It is our conviction that the essential raw materials needed to reform our educational system are waiting to be mobilized through effective leadership:

- the natural abilities of the young that cry out to be developed and the undiminished concern of parents for the well-being of their children;
- the commitment of the Nation to high retention rates in schools and colleges and to full access to education for all;
- the persistent and authentic American dream that superior performance can raise one's state in life and shape one's own future;
- the dedication, against all odds, that keeps teachers serving in schools and colleges, even as the rewards diminish;
- our better understanding of learning and teaching and the implications of this knowledge for school practice, and the numerous examples of local success as a result of superior effort and effective dissemination;
- the ingenuity of our policymakers, scientists, State and local educators, and scholars in formulating solutions once problems are better understood;
- the traditional belief that paying for education is an investment in ever-renewable human resources that are more durable and flexible than capital plant and

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equipment, and the availability in this country of sufficient financial means to invest in education;

- the equally sound tradition, from the Northwest Ordinance of 1787 until today, that the Federal Government should supplement State, local, and other resources to foster key national educational goals; and
- the voluntary efforts of individuals, businesses, and parent and civic groups to cooperate in strengthening educational programs.

These raw materials, combined with the unparalleled array of educational organizations in America, offer us the possibility to create a Learning Society, in which public, private, and parochial schools; colleges and universities; vocational and technical schools and institutes; libraries; science centers, museums, and other cultural institutions; and corporate training and retraining programs offer opportunities and choices for all to learn throughout life.

The Public's Commitment

Of all the tools at hand, the public's support for education is the most powerful. In a message to a National Academy of Sciences meeting in May 1982, President Reagan commented on this fact when he said:

This public awareness—and I hope public action—is long overdue. . . . This country was built on American respect for education. . . . Our challenge now is to create a resurgence of that thirst for education that typifies our Nation's history.

The most recent (1982) Gallup Poll of the *Public's Attitudes Toward the Public Schools* strongly supported a theme heard during our hearings: People are steadfast in their belief that education is the major foundation for the future strength of this country. They even considered education more important than developing the best industrial system or the strong-

equipment, and the availability in this country of sufficient financial means to invest in education;

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est military force, perhaps because they understood education as the cornerstone of both. They also held that education is "extremely important" to one's future success, and that public education should be the top priority for additional Federal funds. Education occupied first place among 12 funding categories considered in the survey—above health care, welfare, and military defense, with 55 percent selecting public education as one of their first three choices. Very clearly, the public understands the primary importance of education as the foundation for a satisfying life, an enlightened and civil society, a strong economy, and a secure Nation.

At the same time, the public has no patience with undemanding and superfluous high school offerings. In another survey, more than 75 percent of all those questioned believed every student planning to go to college should take 4 years of mathematics, English, history/U.S. government, and science, with more than 50 percent adding 2 years each of a foreign language and economics or business. The public even supports requiring much of this curriculum for students who do not plan to go to college. These standards far exceed the strictest high school graduation requirements of any State today, and they also exceed the admission standards of all but a handful of our most selective colleges and universities.

Another dimension of the public's support offers the prospect of constructive reform. The best term to characterize it may simply be the honorable word "patriotism." Citizens know intuitively what some of the best economists have shown in their research, that education is one of the chief engines of a society's material well-being. They know, too, that education is the common bond of a pluralistic society and helps tie us to other cultures around the globe. Citizens also know in their bones that the safety of the United States depends principally on the wit, skill, and spirit of a self-confident people, today and tomorrow. It is, therefore, essential—especially in a period of long-term decline in educational achievement—for government at all levels to affirm its responsibility for nurturing the Nation's intellectual capital.

And perhaps most important, citizens know and believe that the meaning of America to the rest of the world must be something better than it seems to many today. Americans like to think of this Nation as the preeminent country for

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generating the great ideas and material benefits for all mankind. The citizen is dismayed at a steady 15-year decline in industrial productivity, as one great American industry after another falls to world competition. The citizen wants the country to act on the belief, expressed in our hearings and by the large majority in the Gallup Poll, that education should be at the top of the Nation's agenda.

Findings

We conclude that declines in educational performance are in large part the result of disturbing inadequacies in the way the educational process itself is often conducted. The findings that follow, culled from a much more extensive list, reflect four important aspects of the educational process: content, expectations, time, and teaching.

Secondary school curricula have been homogenized, diluted, and diffused to the point that they no longer have a central purpose.

Findings Regarding Content

By content we mean the very "stuff" of education, the curriculum. Because of our concern about the curriculum, the Commission examined patterns of courses high school students took in 1964-69 compared with course patterns in 1976-81. On the basis of these analyses we conclude:

- o Secondary school curricula have been homogenized, diluted, and diffused to the point that they no longer have a central purpose. In effect, we have a cafeteria-style curriculum in which the appetizers and desserts can easily be mistaken for the main courses. Students have migrated from vocational and college preparatory programs to "general track" courses in large numbers. The proportion of students taking a general program of study has increased from 12 percent in 1964 to 42 percent in 1979.

- o This curricular smorgasbord, combined with extensive student choice, explains a great deal about where we find ourselves today. We offer intermediate algebra, but only 31 percent of our recent high school graduates complete it; we offer French I, but only 13 percent complete it; and we offer geography, but only

- o 16 percent complete it. Calculus is available in schools enrolling about 60 percent of all students, but only 6 percent of all students complete it.

- o Twenty-five percent of the credits earned by general track high school students are in physical and health education, work experience outside the school, remedial English and mathematics, and personal service and development courses, such as training for adulthood and marriage.

Findings Regarding Expectations

We define expectations in terms of the level of knowledge, abilities, and skills school and college graduates should possess. They also refer to the time, hard work, behavior, self-discipline, and motivation that are essential for high student achievement. Such expectations are expressed to students in several different ways:

- o by grades, which reflect the degree to which students demonstrate their mastery of subject matter;

- o through high school and college graduation requirements, which tell students which subjects are most important;

- o by the presence or absence of rigorous examinations requiring students to demonstrate their mastery of content and skill before receiving a diploma or a degree;

- o by college admissions requirements, which reinforce high school standards; and

- o by the difficulty of the subject matter students confront in their texts and assigned readings.

Our analyses in each of these areas indicate notable deficiencies:

- o The amount of homework for high school seniors has decreased (two-thirds report less than 1 hour a night)

and grades have risen as average student achievement has been declining.

- In many other industrialized nations, courses in mathematics (other than arithmetic or general mathematics), biology, chemistry, physics, and geography start in grade 6 and are required of *all* students. The time spent on these subjects, based on class hours, is about three times that spent by even the most science-oriented U.S. students, i.e., those who select 4 years of science and mathematics in secondary school.
- A 1980 State-by-State survey of high school diploma requirements reveals that only eight States require high schools to offer foreign language instruction, but none requires students to take the courses. Thirty-five States require only 1 year of mathematics, and 36 require only 1 year of science for a diploma.
- In 13 States, 50 percent or more of the units required for high school graduation may be electives chosen by the student. Given this freedom to choose the substance of half or more of their education, many students opt for less demanding personal service courses, such as bachelor living.
- "Minimum competency" examinations (now required in 37 States) fall short of what is needed, as the "minimum" tends to become the "maximum," thus lowering educational standards for all.
- One-fifth of all 4-year public colleges in the United States must accept every high school graduate within the State regardless of program followed or grades, thereby serving notice to high school students that they can expect to attend college even if they do not follow a demanding course of study in high school or perform well.
- About 23 percent of our more selective colleges and universities reported that their general level of selectivity declined during the 1970s, and 29 percent reported reducing the number of specific high school

courses required for admission (usually by dropping foreign language requirements, which are now specified as a condition for admission by only one-fifth of our institutions of higher education).

- Too few experienced teachers and scholars are involved in writing textbooks. During the past decade or so a large number of texts have been "written down" by their publishers to ever-lower reading levels in response to perceived market demands.
- A recent study by Education Products Information Exchange revealed that a majority of students were able to master 80 percent of the material in some of their subject-matter texts before they had even opened the books. Many books do not challenge the students to whom they are assigned.
- Expenditures for textbooks and other instructional materials have declined by 50 percent over the past 17 years. While some recommend a level of spending on texts of between 5 and 10 percent of the operating costs of schools, the budgets for basal texts and related materials have been dropping during the past decade and a half to only 0.7 percent today.

Findings Regarding Time

Evidence presented to the Commission demonstrates three disturbing facts about the use that American schools and students make of time: (1) compared to other nations, American students spend much less time on school work; (2) time spent in the classroom and on homework is often used ineffectively; and (3) schools are not doing enough to help students develop either the study skills required to use time well or the willingness to spend more time on school work.

- In England and other industrialized countries, it is not unusual for academic high school students to spend 8 hours a day at school, 220 days per year. In the United States, by contrast, the typical school day lasts 6 hours and the school year is 180 days.

... the professional working life of teachers is on the whole unacceptable ...

- o In many schools, the time spent learning how to cook and drive counts as much toward a high school diploma as the time spent studying mathematics, English, chemistry, U.S. history, or biology.
- o A study of the school week in the United States found that some schools provided students only 17 hours of academic instruction during the week, and the average school provided about 22.
- o A California study of individual classrooms found that because of poor management of classroom time, some elementary students received only one-fifth of the instruction others received in reading comprehension.
- o In most schools, the teaching of study skills is haphazard and unplanned. Consequently, many students complete high school and enter college without disciplined and systematic study habits.

Findings Regarding Teaching

The Commission found that not enough of the academically able students are being attracted to teaching; that teacher preparation programs need substantial improvement; that the professional working life of teachers is on the whole unacceptable; and that a serious shortage of teachers exists in key fields.

- o Too many teachers are being drawn from the bottom quarter of graduating high school and college students.
- o The teacher preparation curriculum is weighted heavily with courses in "educational methods" at the expense of courses in subjects to be taught. A survey of 1,350 institutions training teachers indicated that 41 percent of the time of elementary school teacher candidates is spent in education courses, which reduces the amount of time available for subject matter courses.
- o The average salary after 12 years of teaching is only

\$17,000 per year, and many teachers are required to supplement their income with part-time and summer employment. In addition, individual teachers have little influence in such critical professional decisions as, for example, textbook selection.

- o Despite widespread publicity about an overpopulation of teachers, severe shortages of certain kinds of teachers exist: in the fields of mathematics, science, and foreign languages; and among specialists in education for gifted and talented, language minority, and handicapped students.
- o The shortage of teachers in mathematics and science is particularly severe. A 1981 survey of 45 States revealed shortages of mathematics teachers in 43 States, critical shortages of earth sciences teachers in 33 States, and of physics teachers everywhere.
- o Half of the newly employed mathematics, science, and English teachers are not qualified to teach these subjects; fewer than one-third of U.S. high schools offer physics taught by qualified teachers.

Recommendations

In light of the urgent need for improvement, both immediate and long term, this Commission has agreed on a set of recommendations that the American people can begin to act on now, that can be implemented over the next several years, and that promise lasting reform. The topics are familiar, there is little mystery about what we believe must be done. Many schools, districts, and States are already giving serious and constructive attention to these matters, even though their plans may differ from our recommendations in some details.

We wish to note that we refer to public, private, and parochial schools and colleges alike. All are valuable national resources. Examples of actions similar to those recommended below can be found in each of them.

We must emphasize that the variety of student aspirations, abilities, and preparation requires that appropriate content be available to satisfy diverse needs. Attention must be directed to both the nature of the content available and to the needs of particular learners. The most gifted students, for example, may need a curriculum enriched and accelerated beyond even the needs of other students of high ability. Similarly, educationally disadvantaged students may require special curriculum materials, smaller classes, or individual tutoring to help them master the material presented. Nevertheless, there remains a common expectation: We must demand the best effort and performance from all students, whether they are gifted or less able, affluent or disadvantaged, whether destined for college, the farm, or industry.

Our recommendations are based on the beliefs that everyone can learn, that everyone is born with an *urge* to learn which can be nurtured, that a solid high school education is within the reach of virtually all, and that life-long learning will equip people with the skills required for new careers and for citizenship.

Recommendation A: Content

We recommend that State and local high school graduation requirements be strengthened and that, at a minimum, all students seeking a diploma be required to lay the foundations in the Five New Basics by taking the following curriculum during their 4 years of high school: (a) 4 years of English; (b) 3 years of mathematics; (c) 3 years of science; (d) 3 years of social studies; and (e) one-half year of computer science. For the college-bound, 2 years of foreign language in high school are strongly recommended in addition to those taken earlier.

Whatever the student's educational or work objectives, knowledge of the New Basics is the foundation of success for the after-school years and, therefore, forms the core of the modern curriculum. A high level of shared education in these Basics, together with work in the fine and performing arts and foreign languages, constitutes the mind and spirit of our cul-

ture. The following Implementing Recommendations are intended as illustrative descriptions. They are included here to clarify what we mean by the essentials of a strong curriculum.

Implementing Recommendations

1. The teaching of *English* in high school should equip graduates to: (a) comprehend, interpret, evaluate, and use what they read; (b) write well-organized, effective papers; (c) listen effectively and discuss ideas intelligently; and (d) know our literary heritage and how it enhances imagination and ethical understanding, and how it relates to the customs, ideas, and values of today's life and culture.
2. The teaching of *mathematics* in high school should equip graduates to: (a) understand geometric and algebraic concepts; (b) understand elementary probability and statistics; (c) apply mathematics in everyday situations; and (d) estimate, approximate, measure, and test the accuracy of their calculations. In addition to the traditional sequence of studies available for college-bound students, new, equally demanding mathematics curricula need to be developed for those who do not plan to continue their formal education immediately.
3. The teaching of *science* in high school should provide graduates with an introduction to: (a) the concepts, laws, and processes of the physical and biological sciences; (b) the methods of scientific inquiry and reasoning; (c) the application of scientific knowledge to everyday life; and (d) the social and environmental implications of scientific and technological development. Science courses must be revised and updated for both the college-bound and those not intending to go to college. An example of such work is the American Chemical Society's "Chemistry in the Community" program.
4. The teaching of *social studies* in high school should be designed to: (a) enable students to fix their places and

possibilities within the larger social and cultural structure; (b) understand the broad sweep of both ancient and contemporary ideas that have shaped our world; and (c) understand the fundamentals of how our economic system works and how our political system functions; and (d) grasp the difference between free and repressive societies. An understanding of each of these areas is requisite to the informed and committed exercise of citizenship in our free society.

5. The teaching of *computer science* in high school should equip graduates to: (a) understand the computer as an information, computation, and communication device; (b) use the computer in the study of the other Basics and for personal and work-related purposes; and (c) understand the world of computers, electronics, and related technologies.

In addition to the New Basics, other important curriculum matters must be addressed.

6. Achieving proficiency in a *foreign language* ordinarily requires from 4 to 6 years of study and should, therefore, be started in the elementary grades. We believe it is desirable that students achieve such proficiency because study of a foreign language introduces students to non-English-speaking cultures, heightens awareness and comprehension of one's native tongue, and serves the Nation's needs in commerce, diplomacy, defense, and education.

7. The high school curriculum should also provide students with programs requiring rigorous effort in subjects that advance students' personal, educational, and occupational goals, such as the fine and performing arts and vocational education. These areas complement the New Basics, and they should demand the same level of performance as the Basics.

8. The curriculum in the crucial eight grades leading to the high school years should be specifically designed to provide a sound base for study in those and later years in such areas as English language development

and writing, computational and problem solving skills, science, social studies, foreign language, and the arts. These years should foster an enthusiasm for learning and the development of the individual's gifts and talents.

9. We encourage the continuation of efforts by groups such as the American Chemical Society, the American Association for the Advancement of Science, the Modern Language Association, and the National Councils of Teachers of English and Teachers of Mathematics, to revise, update, improve, and make available new and more diverse curricular materials. We applaud the consortia of educators and scientific, industrial, and scholarly societies that cooperate to improve the school curriculum.

Recommendation B: Standards and Expectations

We recommend that schools, colleges, and universities adopt more rigorous and measurable standards, and higher expectations, for academic performance and student conduct, and that 4-year colleges and universities raise their requirements for admission. This will help students do their best educationally with challenging materials in an environment that supports learning and authentic accomplishment.

Implementing Recommendations

1. Grades should be indicators of academic achievement so they can be relied on as evidence of a student's readiness for further study.
2. Four-year colleges and universities should raise their admissions requirements and advise all potential applicants of the standards for admission in terms of specific courses required, performance in these areas, and levels of achievement on standardized achievement tests in each of the five Basics and, where applicable, foreign languages.

