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ABSTRACT

This report on the educational needs of American gifted and talented students identifies indicators of an educational crisis, describes the current status of education for these students, and presents recommendations to meet the educational needs of these students. Indicators demonstrating the need for change include the relatively poor performance by American students on international tests and the small number of students performing at the highest levels on National Assessment of Educational Progress tests. Recent studies have shown that gifted and talented elementary school students have mastered 35-40% of the curriculum in five basic subjects before they begin the school year; most regular classroom teachers make few, if any, provisions for talented students; highest achieving students study less than an hour a day; and only 2 cents out of every $100 spent on K-12 education supports special opportunities for talented students. A review describes how gifted and talented students are currently identified, the number of students served, the kind of support available, the kind of education most gifted and talented students receive, and characteristics of effective programs for these students. Seven recommendations are offered: (1) set challenging curricular standards; (2) establish high-level learning opportunities; (3) ensure access to early childhood education; (4) increase learning opportunities for disadvantaged and minority children with outstanding talents; (5) broaden the definition of gifted (a broadened definition based on the federal Javits Gifted and Talented Education Act is offered); (6) encourage appropriate teacher training and technical assistance; and (7) match world performance. (Contains 43 references.) (DB)

A Case for Developing America's Talent

Office of Educational Research and Improvement
U.S. Department of Education

National Excellence

A Case for Developing America's Talent

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Foreword

More than 20 years have elapsed since the last national report on the status of educating gifted and talented students. Much has changed since that report alerted Americans to the pressing needs of these youngsters and challenged policymakers to provide them with a better education.

National Excellence: The Case for Developing America's Talent discusses these changes. It also describes the "quiet crisis" that continues in how we educate top students. Youngsters with gifts and talents that range from mathematical to musical are still not challenged to work to their full potential. Our neglect of these students makes it impossible for Americans to compete in a global economy demanding their skills.

Americans *can* celebrate improvements over the past two decades in how we educate gifted and talented students. The public is more aware that these students have special needs that are seldom met. The number of programs for gifted and talented youngsters has grown substantially. Many states have enacted legislation encouraging local school districts to provide special opportunities for high-achieving and talented students. And, most significantly, model programs for gifted and talented students have challenged educators to improve curriculum and teaching strategies and encouraged them to raise expectations for *all* students.

But American education is now at a turning point—one that requires us to reach beyond current programs and practices. As the nation strives to improve its schools, the concerns of students with outstanding talents must not be ignored. International tests comparing American students with those in other countries show that students at all levels of achievement are not performing as well as students in many other countries. It is clear that many more American students must learn more complex material, and to do this they must work harder.

All of our students, including the most able, can learn more than we now expect. But it will take a major national commitment for this to occur. By recommending ways to move beyond our "quiet crisis," this report can point us in the right direction.

Richard W. Riley
Secretary of Education

Acknowledgments

Manley Lanier "Sonny" Carter, Jr., served as a member of the steering group for this report until his untimely death in a commuter plane crash in 1991. A man of many talents, Sonny was an astronaut, a "Top Gun" pilot, a physician, a professional soccer player, and most importantly, a devoted father and husband. He was the embodiment of excellence, grace, and modesty. Unassuming despite all his many achievements, he cared deeply about American education and spent much of his time working with young people. He combined professional excellence and personal integrity in a way that serves as a model for us all.

Many people contributed substantially to the development of this report. A steering group provided overall guidance and advice to the U.S. Department of Education throughout the process of developing the report. Their counsel was invaluable in shaping the document. They are:

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The report was developed under the leadership of Pat O'Connell Ross, Director of the Javits Gifted and Talented Education Program.

Contents

Executive Summary

The United States is squandering one of its most precious resources—the gifts, talents, and high interests of many of its students. In a broad range of intellectual and artistic endeavors, these youngsters are not challenged to do their best work. This problem is especially severe among economically disadvantaged and minority students, who have access to fewer advanced educational opportunities and whose talents often go unnoticed.

Reforming American schools depends on challenging students to work harder and master more complex material. Few would argue against this for students performing at low or average levels. But we must also challenge our top-performing students to greater heights if our nation is to achieve a world class educational system. In order to make economic strides, America must rely upon many of its top-performing students to provide leadership—in mathematics, science, writing, politics, dance, art, business, history, health, and other human pursuits.

A number of indicators point to the need to change the way we educate our talented students. For example,

- Compared with top students in other industrialized countries, American students perform poorly on international tests, are offered a less rigorous curriculum, read fewer demanding books, do less homework, and enter the work force or postsecondary education less well prepared.

- Not enough American students perform at the highest levels on National Assessment of Educational Progress (NAEP) tests, which provide one of the few indicators available of how well our students achieve.

The tendency for Americans to hold low academic expectations is not new. Throughout history, Americans have shown ambivalence about high academic and artistic performance and interest. We prize creativity and academic success, particularly if it leads to a practical accomplishment. But some also pin negative names such as nerd or dweeb on students who excel academically, and high-achieving minority students are sometimes accused of "acting white."

Most American students are encouraged to finish high school and earn good grades. But students are not asked to work hard or master a body of challenging knowledge or skills. The message society often sends to students is to aim for academic *adequacy*, not academic *excellence*.

Effective programs for gifted and talented students exist throughout the country, but many are limited in scope and substance. Most gifted and talented students spend their school days without attention paid to their special learning needs. Recent studies show that

- Gifted and talented elementary school students have mastered from 35 to 50 percent of the curriculum to be offered in five basic subjects before they begin the school year.
- Most regular classroom teachers make few, if any, provisions for talented students.
- Most of the highest-achieving students in the nation included in *Who's Who Among American High School Students* reported that they studied less than an hour a day. This suggests they get top grades without having to work hard.
- In the one national survey available, only 2 cents out of every $100 spent on K-12 education in the United States in 1990 supported special opportunities for talented students.

To improve education opportunities for America's top students, the following steps must be taken:

- **Set challenging curriculum standards.** The content standards, curriculum, and assessment practices must challenge all students, including those who are talented.
- **Provide more challenging opportunities to learn.** Communities and schools must provide more and better opportunities for top students to learn advanced material and move at their own pace. Flexibility and variety are essential. Learning opportunities for exceptional students must be available both inside and outside the school building.
- **Increase access to early childhood education.** All children, but particularly poor and minority children, must have opportunities to participate in high-quality early childhood programs that emphasize the development of their strengths rather than focus on their deficiencies.
- **Increase learning opportunities for disadvantaged and minority children with outstanding talents.** These youngsters need extra support to overcome their barriers to achievement. Schools must make more high-level learning experiences available to these students.
- **Broaden the definition of gifted.** States and districts need to rethink their definitions and assessment strategies to serve a wider range of talented students. In the past 20 years, new research has challenged the view that intelligence is fixed and can be measured by one test.

Today, researchers know that intelligence takes many forms and therefore requires that many criteria be used to measure it. This understanding has led educators to question traditional definitions of intelligence and current assessment practices and procedures. Educators must identify outstanding talent by observing students in settings that enable them to display their abilities, rather than relying solely on test scores.

The following definition, based on the definition in the federal Javits Gifted and Talented Education Act, reflects today's knowledge and thinking:

> Children and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience, or environment.
>
> These children and youth exhibit high performance capability in intellectual, creative, and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided by the schools.
>
> Outstanding talents are present in children and youth from all cultural groups, across all economic strata, and in all areas of human endeavor.

- **Emphasize teacher development.** Teachers must receive better training in how to teach high-level curricula. They need support for providing instruction that challenges all students sufficiently. This will benefit not only students with outstanding talent but children at every academic level.
- **Match world performance.** The United States must learn from nations whose top students perform well and take steps to ensure that high-achieving American students compare favorably with their counterparts around the world.

The nation's governors and the President recognized the need to improve education for students with outstanding talent when they convened in 1989 for the historical Education Summit in Charlottesville, Virginia. They defined six National Education Goals and declared that meeting them by the year 2000 "will require that the performance of our highest achievers be boosted to levels that equal or exceed the performance of the best students anywhere." Our challenge is to raise expectations for all students in America, including those with outstanding talent.

The general objects—are to provide an education adapted to the years, the capacity, and the condition of everyone, and directed to their freedom and happiness—We hope to avail the state of those talents which nature has sown as liberally among the poor as the rich, but which perish without use, if not sought for and cultivated.

Thomas Jefferson
Notes on Virginia

Part I.

A Quiet Crisis in Educating Talented Students

In a broad range of intellectual and artistic endeavors, America's most talented students often fail to reach their full potential. These students are or have the capability to be outstanding, whether in mathematics, writing, dance, history, athletics, or any important human endeavor. They excel at intellectual and artistic endeavors that are complex, difficult, and novel. They often learn rapidly and are bored with repetition. They are often tenacious in pursuits that interest them. The way in which they learn sets them apart from most other children and challenges educators and parents.

Despite sporadic attention over the years to the needs of bright students, most of them continue to spend time in school working well below their capabilities. The belief espoused in school reform that children from all economic and cultural backgrounds must reach their full potential has not been extended to America's most talented students. They are underchallenged and therefore underachieve.

That so many of our students work below their potential has grave implications for the nation. The scholarship, inventiveness, and expertise that created the foundation for America's high standard of living and quality of life are eroding. Most top students in the United States are offered a less rigorous curriculum, read fewer demanding books, complete less homework, and enter the work force or postsecondary education less well prepared than top students in many other industrialized countries. These deficiencies are particularly apparent in the areas of mathematics and science.

The talents of disadvantaged and minority children have been especially neglected. Almost one in four American children lives in poverty, representing an enormous pool of untapped talent. Yet most programs for these children focus on solving the problems they bring to school, rather than on challenging them to develop their strengths. It is sometimes assumed that children from unpromising backgrounds are not capable of outstanding accomplishment. Yet stories abound of

disadvantaged children who achieve at high levels when nurtured sufficiently.

Ultimately, the drive to strengthen the education of students with outstanding talents is a drive toward excellence for *all* students. Education reform will be slowed if it is restricted to boosting standards for students at the bottom and middle rungs of the academic ladder. At the same time we raise the "floor" (the minimum levels of accomplishment we consider to be acceptable), we also must raise the "ceiling" (the highest academic level for which we strive).

The President and the nation's governors recognized this need at the 1989 Education Summit held in Charlottesville, Virginia. They defined six National Education Goals and declared that meeting them by the year 2000 "will require that the performance of our highest achievers be boosted to levels that equal or exceed the performance of the best students anywhere. . . We must work to ensure that a significant number of students from all races, ethnic groups, and income levels are among our top performers." This challenge cannot be ignored.

Indicators of the Crisis

Perceptions exist that education problems are confined largely to children at risk of school failure. Many education reports have articulated problems in general education, but they have ignored the condition of education for the nation's most able students. There is mounting evidence that gifted and talented students do not learn as much as they could and compare unfavorably with students in other countries. The following indicators tell the story:

Sample NAEP Math Question: Advanced Level

Suppose you have 10 coins and have at least one each of a quarter, a dime, a nickel, and a penny. What is the LEAST amount of money you could have?

a. 41 cents
b. 47 cents
c. 50 cents
d. 82 cents

National Assessment of Educational Progress

The National Assessment of Educational Progress (NAEP) provides one of the few indicators of how well American students achieve. These tests are not intended to give specific information about the nation's more capable students. However, the results show that very few students perform at NAEP's highest level—a level that is not very demanding. NAEP considers the advanced level to be what is needed for college-level performance.

NAEP tests have found that the percentage of high school seniors performing at the level needed for college work is far lower than the percentage who enroll in college. For example, 58 percent of students who graduated from high school in 1988 enrolled in 2- and 4-year colleges, but

- Only 7 percent of 17-year-olds could solve multi-step mathematics problems such as finding percentages, a skill that does not require advanced algebra or calculus (1990);

- Less than 5 percent of 17-year-olds could interpret historical data at a level that is expected for college work;
- Only 6 percent of 17-year-olds tested in civics could answer questions such as who in the federal government has the power to tax;
- Only 9 percent of 17-year-olds knew enough science to infer basic relationships and draw conclusions using detailed scientific knowledge (1990);
- Only 1 in 100 high school seniors chose to write a coherent response of more than one paragraph to an essay question (1990); and
- Only 7 percent of high school seniors could read at the advanced level (1990).

The results of the NAEP tests suggest that the curriculum offered throughout the nation fails to prepare most students to operate at advanced intellectual levels. As Al Shanker, president of the American Federation of Teachers, points out, even the questions at the highest levels of these tests "do not require knowing Dickens or Shakespeare or calculus or difficult concepts in history or science. They require the kinds of skills people who have completed high school need in order to find their way in the world."

Low academic expectations in American elementary and secondary schools go on to create problems when top students enroll in college. Many of these students must struggle to keep up with the demands of their courses, and, in some cases, they drop out of college or avoid tough classes because of insufficient preparation. Colleges and universities may respond both by providing more remedial instruction and by lowering their academic standards.

Scholastic Aptitude Tests and Advanced Placement Data

Scores on the Scholastic Aptitude Test (SAT), required for admission to many American colleges and universities, also provide an unimpressive portrait of the academic accomplishment of America's top students. They show that

- Since 1972, the number of students with high scores (over 600 out of a possible 800) declined by more than 40 percent on the verbal portion, with 1989 yielding the fewest students scoring between 700 and 800 since 1984. The average entering scores to the most selective colleges in 1970 ranged from 670 to 695 on the verbal portion; in the mid-1980s, they ranged from 620 to 640.
- The number of high scorers on the mathematics section has not increased since 1972.

Jon worked with the first and second grade class for gifted students for half of his kindergarten time each day. By the end of kindergarten, he was reading at a fourth grade level and doing math far advanced for his age. The individualized math program in which he participated in first grade enabled him to complete the third grade book by the end of the year. By fourth grade, he took algebra I at the middle school, and in fifth grade he took advanced geometry at the high school. By the end of eighth grade, he completed Advanced Placement (AP) calculus and had earned a 5 on the AP test. During high school, he completed three more college-level math courses through a correspondence program.

"I know that without the school's Advanced Study Program, Jon would not have been able to excel at the level he has," his mother said. "The aspect for which I am most grateful is that while he has had the opportunity to work at his own level in most subjects, he has also been with this age mates in all classes except mathematics."

- Among high-scoring students on the mathematics section, the proportion interested in becoming mathematicians, scientists, or engineers—three areas where the country has a growing demand—has declined steadily since 1982.

Caution is needed when looking at SAT scores because the difficulty of the test may have become easier over time. Advanced Placement (AP) scores, on the other hand, have been remarkably stable in the past 20 years despite tremendous growth in AP enrollment. Minority participation in the program, which offers students the opportunity to complete college-level studies during secondary school, has steadily increased. This suggests that students can meet the challenge when academic standards are set high, fueling the argument that much more can be expected of students.

Tests of International Comparison

Whatever our national indicators show, it is no longer sufficient for the United States to examine the achievement of its students solely with internal comparisons. As competition stiffens with other countries, international comparisons provide perspective on America's ability to survive in a global economy.

Americans assume that our best students can compete with the best students anywhere. This is not true. International assessments have focused attention on the relatively poor standing of all American students. These tests also show that our top-performing students are undistinguished at best and poor at worst when compared with top students in other countries.

International test data provide the best comparison of mathematics and science achievement. For a comparison of the humanities, a look at the curriculum and expectations as they are expressed on national exams reveals much about how our students perform. The test data and exam questions clearly show that our best students are not receiving as challenging an education as students in other nations. For example,

A. Elementary-Level Mathematics and Science

- A 1986 study of first and fifth graders in the United States, Taiwan, and Japan found no innate intellectual differences among the children. Yet in mathematics, only 15 American children were among the top 100 scorers in first grade, and only one was among the top scorers in fifth grade. If proportionately distributed, there should have been about 33 American children in the top group.

- American 13-year-olds performed very poorly when they were tested in 1987 for higher levels of conceptual thinking against 11 other countries and Canadian provinces. The advanced levels involved understanding concepts and interpreting data in mathematics and science.

—In mathematics, only 9 percent of U.S. students performed at the level that requires understanding concepts, while 40 percent of students from Korea, the top-scoring country, were at this level. At the highest level, less than 1 percent of U.S. students could interpret data compared to 5 percent of Korean students.

—In science, only 7 percent of U.S. students could apply elementary scientific principles in problem solving compared to 33 percent of students from Korea and 31 percent from British Columbia. At the highest level, less than 1 percent of U.S. students could apply experimental data, while 2 percent of students from Korea and 4 percent of students from British Columbia could do so.

- A large international study of 20 countries, released in February 1992, tested 9- and 13-year-olds in mathematics and science. Findings show that, except for 9-year-olds tested in science, American students ranked close to the bottom when scores of the top 10 percent of students tested in each country were compared.

  Interestingly, American students ranked best on the science test for 9-year-olds, a test given before youngsters in most countries receive formal instruction in science. American students did not rank as well, however, when they were tested at age 13—once schools in all of the countries have begun to provide formal instruction.

B. Secondary-Level Mathematics and Science

- To gauge achievement of American high school students in science, we can turn to a study comparing U.S. seniors taking Advanced Placement (AP) courses in science with top students in 13 other countries. U.S. students represented the top 1 percent of students in the nation. The study found that American students were

  —13th out of 13 in biology;
  —11th out of 13 in chemistry; and
  — 9th out of 13 in physics.

  When controlled for selectivity (a higher percentage of the total school population in other countries takes advanced classes), American students scored the lowest of the participating nations in all three areas.

- In mathematics, the top 1 percent of students in the United States scored very poorly when compared to a similar group of students in 13 countries:

  —13th out of 13 in algebra and
  —12th out of 13 in geometry and calculus.

- When comparing American and Japanese high school seniors enrolled in college preparatory math classes, Japanese students at the 50th percentile scored slightly higher than the top 5th percentile of American students.

"I do not think that it would be possible in this country to have a comparable curriculum for a significant portion of the students. However, it would be desirable to have at least such options for those interested and talented."

—Paul Oskar Kristeller, MacArthur Fellow, on his own rigorous education in Europe with a heavy emphasis on languages and mathematical thinking

Critics charge that international assessment results are skewed because the United States educates a larger portion of students, which lowers the American rankings. But the indicators cited here compare America's top students with top students overseas, and our youngsters still rank at or near the bottom in all subjects tested.

C. International Exams for Students Entering Universities

Testing programs in other countries drive home the discrepancy in what and how students are asked to learn. Tests reflect what students are taught in their respective classrooms. Whereas the only examinations required of students seeking admission to most American colleges are multiple-choice exams, students in other countries must write extensive essays on their college entrance exams. These essay exams provide a fair comparison of what various nations teach in their curricula and of their expectations for student performance. The National Endowment for the Humanities recently compiled examples of national examinations given to students from other countries leaving secondary education for universities and found the following:

- British and Welsh students are asked to write for 3 hours on questions about U.S. history, such as "Why did Virginians dominate the presidency from 1789 to 1825?" or "To what extent does the conduct of American foreign policy, 1954–1974, offer evidence for the existence and influence of a 'military-industrial complex'?"
- French students of philosophy and liberal arts, an area students may concentrate on in secondary school, are asked to write for 4 hours on such questions as "How might one characterize rigorous thought?" or "What does one gain by losing one's illusions?"
- German students are given the text of selected original documents and asked to write for 3 1/2 hours. They respond to such statements as "Disagreement over the person and the role of the king was a key element in the first phase of the French Revolution," and are instructed to describe the development of this tense situation from the meeting of the Estates General to the trial of the king.
- The 12 member countries of the European Community (EC) have established an examination system that allows students from any of the participating nations to sit for a common set of exams and, if successful, be eligible for admission to any university in these countries. The examination focuses on subjects taught in the 11th and 12th years of schooling and includes five written and four oral exams, which are more challenging than those normally given in the United States.

  EC students also are required to study three languages. Beyond the obvious advantage this suggests in the ability to communicate with more people, it also indicates greater knowledge of other cultures and of the nature and study of language and linguistic structure.

America's top students have the potential to achieve at the same levels as their international counterparts, but our students are not challenged to do so. Top-performing students in the United States spend less time in school, spend less time outside school doing homework, and are not asked to work with challenging materials as often as their peers in other countries. According to several studies, more than half of our gifted students fail to achieve in school at a level commensurate with their abilities.

Performance of Top Students in Graduate School and in Mathematics and Science Careers

The poor performance of America's top elementary and high school students, especially in mathematics and science, continues on into college and the professional world.

- Only one-half of America's high-ability high school seniors from the class of 1980 (the top 25 percent as indicated by achievement tests) were estimated to have received a bachelor's degree by 1987. Only one in eight had entered graduate school or postbaccalaureate professional school by that date.
- Among black students who score at the highest levels on the Scholastic Aptitude Test (those with a combined verbal and math SAT score of 1,400 or above), more than 18 percent leave school because of academic problems. Up to 70 percent of black students who enroll in 4-year colleges drop out at some point.
- Graduate school enrollments of American students in mathematics and science have declined substantially in the past 20 years, while the number of foreign-born students enrolled has risen. In 1990, 57 percent of doctorates granted in the United States in mathematics went to students from other nations.
- Minorities are not entering many important fields in mathematics and science. For example, blacks make up 12 percent of the population, yet earn only 5 percent of the baccalaureate degrees awarded each year in science and mathematics, receive only 1 percent of the Ph.D.s, and make up only 2 percent of all employed scientists and engineers in the country. Hispanics make up 9 percent of the population, but represent only 3 percent of the baccalaureate degrees in science and mathematics, 2 percent of the Ph.D.s, and 2 percent of all employed scientists and engineers in the country. Therefore, the fastest growing sectors of our society are seriously underrepresented in leadership positions in science and mathematics.

Foreign-born students are not taking away jobs from Americans; they are filling jobs that are going empty. The U.S. shortage of graduate students in mathematics and science forces many large companies—such as Texas Instruments, Bell Laboratories, and IBM—to fill jobs, particularly in research, with people educated outside the United States.

"It [American schooling] was actually a deterrent to serious thinking and well-motivated productivity. Unless one has strong cou[illegible]ervailing values...sparks of talent are likely to be extinguished well before adulthood."

—Howard Gardner, MacArthur Fellow

In Bell Lab's research area, for example, about 40 percent of the professional employees received their precollegiate education in other countries.

These foreign-educated people alone, however, cannot continue to supply the nation with all the scientists, mathematicians, and engineers it needs. Yet American students are being shut out of these professions because of poor preparation and lack of interest. Already spot shortages exist in some science fields in the United States, and unless dramatic changes are made in the way we educate all of our students, including our most talented, the shortages will increase.

In Sum . . .

The indicators tell us that

- Only a small percentage of students are prepared for challenging college-level work as measured by tests that are not very exacting or difficult;
- The highest-achieving American students fare poorly when compared with similar students in other nations; and
- Students going on to a university education in other countries are expected to know more than American students and to be able to think and write analytically about that knowledge on challenging exams.

Educators recognize that tests have limitations. Widely used tests do not gauge creativity or leadership abilities or other important human qualities. Nor do they indicate the potential of students. Still, the message the tests collectively carry is disturbing: America demands less of top students than other countries do. At the same time our need for the highest levels of skills and expertise is on the rise, many of America's most talented students are being denied a challenging education.

America's Ambivalence Toward the Intellect

The American tendency to have low expectations in education is not new, but it is more visible today. The roots of it were apparent in 18th and 19th century America. Writing in the 1830s, Alexis de Tocqueville portrayed the United States as a society with low levels of interest in education and intellect. Ours, he noted, was a culture that values equality. Americans, he observed, are uncomfortable with social or intellectual distinctions or with any hierarchies that they believe can stand in the way of success for industrious individuals. He also noted a tendency of Americans to move toward a "middling standard" that favors conformity over deviation from the norm.

This distrust of scholarship and reverence for the average has persisted throughout American history. As Richard Hofstadter wrote in his 1970 book *Anti-Intellectualism in American Life:*

> Again and again, it has been noticed that intellect in America is resented as a kind of excellence, as a claim to distinction, as a challenge to egalitarianism, as a quality which almost certainly deprives a man or woman of the common touch.

But competing with the nation's egalitarian spirit is a conflicting assumption—that individuals should be allowed to "be all that they can be." In America, freedom and liberty are valued as tools to unleashing potential in citizens so that they can go as far as their talent and ambition will allow. The assumption is that people vary in interests and abilities, and those who can excel ought to be able to do so.

These two beliefs—a distrust of the intellect and an assumption that people should be allowed to develop to their full potential—have clashed throughout American history and have muddled efforts to provide a quality education for the nation's most promising students. Today, exceptional talent is viewed as both a valuable human resource and a troublesome expression of eccentricity. As a culture, we admire and reward the brilliant, creative mind after it has invented something practical or produced tangible results. Yet we are not inclined to support those who want to pursue an artistic or intellectual life, and we find ways of discouraging those who wish to do so.

Mixed Message to Students

"I deliberately falsified answers to get lower grades. Grades were important to me, but I wanted to keep them low enough to win acceptance with the gang."

—Richard Critchfield,
journalist and MacArthur Fellow

The nation's high-ability students receive mixed messages. Our society urges these young people to do well in school; but it also encourages them not to flaunt their intelligence and, in some cases, to avoid high grades and excellent academic achievement altogether. America's negative nicknames for these students say a lot about how they are often regarded. Gregory Anrig, president of the Educational Testing Service, explains:

> In America we often make fun of our brightest students, giving them such derogatory names as nerd, dweeb, or, in a former day, egghead. We have conflicting feelings about people who are smart, and we give conflicting signals to our children about how hard they should work to be smart. As a culture we seem to value beauty and brawn far more than brains.

Negative stereotypes of high-achieving students have created an atmosphere in which students do not want to be identified as very smart. In one study at three Midwestern high schools, researchers discovered that less than 10 percent of the students with a straight "A" average perceived themselves to be part of the "brain crowd." Moreover, less than one-third of the students nominated to this crowd by their peers perceived themselves to be "brains." The percentage was much lower among females (4 percent) than males (18 percent) but did not vary substantially by ethnic background. Students say they want to do well, but not exceptionally well, because it is more important to be accepted by the "in crowd (which) is not the brain crowd."

Peer pressure to avoid academic excellence can be particularly difficult to combat among minority adolescents because they sometimes link it to majority cultural values. High achievers in one inner-city high school populated by low-income blacks were labeled "brainiacs," a term associated with a variety of undesirable characteristics, including wimpishness. In addition, brainiacs were accused of "acting white,"—of disavowing their ethnic heritage in an effort to become accepted by the dominant society.

"I always loved learning things because I was good at it, but it is not a simple thing to love learning in an American high school. Most of the students, who are bored by it, don't understand enthusiasm and read it as a betrayal of the adolescent collective. In an ordinary school it is a difficult passage; I think."

—Robert Hass, poet and MacArthur Fellow

In short, students feel pressure to finish high school and get good grades. At the same time, however, they are pressured not to work hard, develop scholarly habits, or master a body of knowledge. The message our society transmits to its students is to do moderately well—to strive for academic *adequacy,* not academic *excellence.*

Implications for American Education

We know that high expectations produce higher achievement. Yet our expectations for most American students remain at minimum levels of academic competency. We set the bar well below the standards set in many other nations and wonder why our students achieve at low levels. We fail to provide opportunities for students to perform at high levels and then lament that few of our youngsters excel.

To compete on an equal footing with the rest of the world, we must start our children down the path to excellence when they are very young. Learning is cumulative; all students, including the gifted, develop to their full potential only when their special strengths are identified and supported throughout their lives. This is particularly true with economically disadvantaged children because they often face so many impediments to success. We must acknowledge that all schools, whether in affluent or low-income communities, have children with outstanding talent. Our job is to find these children and to develop their full potential.

To help accomplish this goal, we must elicit the help of the entire community. Policymakers, educators, business leaders, civic organizations, and parents can all play important roles in improving education for America's most talented students. Because so many values are learned at home, it is particularly critical for parents of talented children to work closely with the schools and to instill in their children the desire to excel.

Only a challenging educational environment that elevates standards for everyone can create the schools our students need to take their places in tomorrow's world. We can build world class schools; we can raise the ceiling of expectations for all students; and we can provide challenging opportunities for students with outstanding talent. Herein lies the key to better schools.

Part II.

The Current Status of Education for the Nation's Most Talented Students

A look at education for most talented students reveals deficiencies in how we educate all youngsters. It also uncovers some valuable resources for building a new approach to American education. Toward that end, this section reviews

- How states and districts identify gifted and talented students;
- The number of students served;
- The kind of support available for educating gifted and talented students;
- The kind of education most gifted and talented students receive in elementary and secondary schools; and
- Effective programs for gifted and talented students and the qualities these programs possess that might benefit all American students.

How States and Districts Identify Talented Students

Most states and localities have developed definitions of gifted and talented students in order to identify such students for special programs. Many of these definitions are based on the definition in the 1972 Marland Report to Congress on gifted and talented education. The Marland Report definition identified a variety of abilities in addition to general intellectual ability, estimated that gifted students make up a minimum of 3 to 5 percent of the student population, and encouraged schools to provide programs to students who are outstanding in any specific area. A large gap exists, however, between the Marland definition and the way

1972 Marland Definition
(Public Law 91–230, section 806)

Gifted and talented children are those identified by professionally qualified persons, who by virtue of outstanding abilities are capable of high performance. These are children who require differentiated educational programs and/or services beyond those normally provided by the regular school program in order to realize their contribution to self and society.

Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas, singly or in combination:

1. general intellectual ability,
2. specific academic aptitude.
3. creative or productive thinking,
4. leadership ability,
5. visual and performing arts,
6. psychomotor ability.

It can be assumed that utilization of these criteria for identification of the gifted and talented will encompass a minimum of 3 to 5 percent of the school population.

most districts identify gifted students. The definition suggests that districts consider a broad range of talents, but most continue to restrict participation in programs for the gifted largely to those with exceptional intellectual ability.

In one recent national survey, 73 percent of school districts indicated that they have adopted the Marland definition; few said that they use it to identify and serve any area of giftedness other than high general intelligence as measured on IQ and achievement tests. Most mainly use tests and teacher recommendations to admit students to gifted and talented programs, limiting participation to students with high general intelligence and good school records and missing many outstanding students with other talents. This practice ignores extensive evidence from psychologists and neuroscientists that youngsters can be intelligent in many different ways, all of which schools can help to develop.

Several categories of talented children are particularly neglected in programs for top students. These include culturally different children (including minority and economically disadvantaged students), females (who are underserved in mathematics and science programs), students with disabilities, high potential students who underachieve in school, and students with artistic talent. Some schools are discouraged from serving these students by state laws or regulations which require the schools to use certain IQ cutoff scores or specific levels of performance on standardized tests if they wish to receive state funding for gifted and talented programs. However, even in states that do not have test score cutoffs, local schools often choose to use test scores because they are easier to determine and "safer" than more subjective procedures. While state and local definitions display good intentions, the practices used to assess and identify students are often unsatisfactory.

Number of Students Served

Programs for gifted and talented students exist in every state and in many school districts, but it is difficult to determine the exact number of students served because not all states and localities collect this information. However, we do know that

- Twenty years ago, few programs existed for gifted and talented students. By 1990, 38 states served more than 2 million K–12 gifted students. The remaining states did not report the number of students served, although we know that such programs exist in every state.
- The number and percentage of students identified as gifted and talented varies from state to state due to differences in state laws and local practices. For example, 4 states identify more than 10 percent of their students as gifted and talented, while in 21 states fewer than 5 percent are identified as such.
- Sixty-five percent of the public schools, which together served 75 percent of all public school 8th graders, had some kind of opportunity for gifted and talented students, according to the National Education Longitudinal Study

(NELS) of 1988, which looked at 8th graders throughout the nation.

- Some minority groups are more likely to be served than others. The NELS study found that about 8.8 percent of all 8th-grade public school students participated in gifted and talented programs. Racial and ethnic groups were represented as follows:

  —17.6 percent of Asian students;
  — 9.0 percent of white, non-Hispanic students;
  — 7.9 percent of black students;
  — 6.7 percent of Hispanic students; and
  — 2.1 percent of American Indian students.

- States that use IQ score cutoffs to identify gifted and talented students are more likely to have larger disparities among racial and ethnic groups.

- Economically disadvantaged students were significantly underserved, according to NELS data. Only 9 percent of students in gifted and talented education programs were in the bottom quartile of family income, while 47 percent of program participants were from the top quartile in family income.

Certainly, the number of students served in gifted and talented programs has grown substantially in the past 20 years. However, it is also clear that students from economically disadvantaged families and students with unorthodox talents are not being identified in equitable proportions.

Support for Students

A 1992 Gallup poll found widespread public support for providing additional educational opportunities for students with special talents. When asked about challenging the brightest children, 61 percent of respondents said that the schools should do more than they presently are, 35 percent said the schools should continue to do the same, and only 2 percent said the schools should do less.

When asked, "Would you support or oppose special funding for a program to provide a more challenging education for the smartest and most gifted children, as long as it did not reduce what was offered to average and slow learners?," 84 percent said they would support the funding. Little difference existed in the responses of parents with children identified as having special abilities and in the responses of parents who did not.

In the past 20 years, many state and federal policies have acknowledged the widespread public support to serve outstanding students by setting up special programs. However, many programs for the gifted and talented that began in the 1970s and 1980s have been curtailed or had their funds cut in the past few years because of state and local budget crises.

"Although my parents were not well educated, I believe that our dinner table conversation was far more significant in instilling both social values and concern for knowledge and facts."

—Sylvia Law,
professor of law and MacArthur Fellow

- **State and local expenses.** It is hard to estimate how much is spent on gifted and talented students because some states do not keep records of these funds. We do know, however, that in 1990, 37 states and trust territories reported spending almost $395 million in state and local funds on gifted and talented education. This figure, however, represents only 2 cents out of every $100 spent on elementary and secondary education. Furthermore, it is likely that this figure was a high point for funding. Budget crises and opposition to programs have led recently to program cuts in many states and districts and have tended to fall unevenly on programs for gifted and talented students.

- **State policies that support programs for the talented.** Twenty years ago, only seven states had legislation and funding for gifted and talented education programs. By 1990, most states had legislation and some financial support for these programs. The policies, however, vary greatly from state to state. For example, by 1990

  —Twenty-six states and trust territories required that schools provide specialized services for gifted and talented students;
  —Twenty-seven states and territories passed discretionary legislation that encouraged districts to provide programs for gifted and talented students; and
  —Six states and territories lacked legislation or state support for gifted and talented programs.

- **Federal involvement.** A small federal program, which gave money to states to develop programs for gifted and talented students, began with the publication of the Marland Report in 1972. That federal effort ended in 1981, and, until 1988, the federal government suspended its direct involvement in education for gifted and talented students.

  The Jacob K. Javits Gifted and Talented Students Act of 1988 reestablished a federal presence. This modestly funded program (just under $10 million in 1992) supports demonstration grants, a national research center, and national leadership activities designed to focus attention on the needs of students with demonstrated or potential talent. Priority funding is given to efforts to serve gifted and talented students who are economically disadvantaged, speak limited English, or have disabilities.

Programs and Services for Talented Students

Policies alone do not guarantee that children with exceptional talents will receive a meaningful education. Most gifted and talented programs today are modest in scope. The vast majority of talented students spend most of the school day in a regular classroom where little is done to adapt the curriculum to their special learning needs. Exciting pedagogy and teaching strategies have been developed and refined in some special programs for gifted and talented students. From kindergarten through high school, the education available to talented students is largely insufficient because most schools have not been committed to addressing their needs seriously. Programs for gifted and talented students have served as laboratories of innovation in educational practice. However, few of these approaches have made their way into the regular classrooms.

Current Elementary School Programs

- **The regular school curriculum does not challenge gifted and talented students.** Recent studies of American education have criticized the curriculum for its lack of rigor. The problem is evident in textbooks, which, despite known weaknesses, remain the chief education tool used to instruct American students. In nearly every subject, textbooks tackle too many topics and cover them superficially. Moreover, many textbooks have decreased in difficulty by two grade levels in the last 20 years, and few if any publishers produce textbooks aimed at above-average students.

  The "basic skills" movement, which sought to help students struggling with the regular curriculum to learn more effectively by simplifying learning activities, further weakened the regular school curriculum. All children, not just those with exceptional talent, have suffered from a narrowing of the curriculum; but the gap between the level of the curriculum and the abilities of talented students is the largest of all student groups.

- **Most academically talented students have already mastered up to one-half of the required curriculum offered to them in elementary school.** In one recent national study of five content areas, elementary school teachers eliminated an average of 35 to 50 percent of the regular curriculum for gifted and talented students after tests at the start of the school year showed that these youngsters had already mastered that much of what was to be taught. These students were then allowed to work on other activities during the time they were released from working on materials that they had already mastered. When the students were retested at the end of the school year, the gifted students excused from large portions of the regular curriculum did better than a control group of gifted and talented students in science and mathematics concepts and stayed even with the control group in all other subjects.

Alicia is a black five-year-old who lives in central Harlem. She is one of 11 children under the age of 13. Her mother is addicted to crack, and her absentee father is an alcoholic.

Despite the daily challenges that face Alicia, she is a survivor. Her academic profile is astonishing: She can carry out sophisticated math computations, is teaching herself to read, can weave imaginative stories, and is passionate about playing card games with her teacher in the Project Synergy Summer Program at Teachers College. Her standardized math assessment places her in the 85th percentile, despite her difficult home environment and low-achieving school.

"My overall reaction to my early education is that there is no important connection between what is demanded of a student and what is needed as a scholar."

—Michael Ghiselin,
biologist and MacArthur Fellow

- **Classroom teachers do little to accommodate the different learning needs of gifted children.** In a large national survey, most teachers said they give the same assignments to both gifted and average students almost all the time, and few said they use many "higher level" teaching strategies in their classrooms.

  In a follow-up study involving classroom visits, researchers found that 84 percent of assignments for gifted students were the same as those made to the whole class in the five subjects surveyed. The most individualization took place in mathematics, but even there only 11 percent of activities for gifted students contained advanced content and instruction.

- **Most specialized programs are available for only a few hours a week.** One study reported that 72 percent of districts with elementary programs for gifted students use the "pull out" program or resource room approach, where students leave their regular classrooms for a few hours a week to work on special projects. This has not proved to be an especially successful program for most special populations. Other popular approaches include "enrichment" offerings, where students receive extra opportunities to learn, and independent study. Some schools allow students to enter a grade level ahead of schedule, move at their own pace through the curriculum, or offer self-contained classes for talented students. A few school districts provide special schools or allow students to move significantly ahead of their age peers. Many school districts use a combination of approaches. While programs for gifted students often provide challenging learning opportunities, most students with outstanding talent spend most of their time in the regular curriculum with few differentiated opportunities.

- **Students talented in the arts are offered few challenging opportunities.** A few districts provide intense or accelerated arts instruction in magnet schools designed for elementary and middle school students, but such opportunities are not widely available throughout the country. Many elementary schools offer no fine arts instruction, and budget cuts have eliminated arts teachers in other elementary and middle schools. Without basic opportunities in the visual and performing arts, outstanding talent in these disciplines is difficult to discover and cultivate.

Current Secondary School Programs

- **Appropriate opportunities in middle schools are scattered and uncoordinated.** Educators have struggled for a long time to find the best way to serve students during their complicated middle school years. In the current reform conversation, middle school educators have spoken forcefully about the importance of addressing students' individual needs. They have also indicated that students should not be singled out or receive special instruction—whether in sports, arts, or academics—for fear of damaging the self-esteem of those not selected.

  The consequent ambivalence about "special" programs has led many middle schools to eliminate individualized learning opportunities previously offered to gifted students. Too few middle schools now provide their most talented students with advanced learning opportunities, mentors, extracurricular activities based on students' special interests, or other options for developing their potential. More needs to be done to create middle schools that meet the needs of all children.

- **High school schedules do not meet the needs of talented students.** As Ernest L. Boyer writes in *High School:*

  > What gifted students want is flexibility: to be allowed to go at their own pace, to satisfy course requirements as quickly as possible, and to move on to new areas of learning. One bright young man put it this way:
  >
  > Believe it or not, we don't necessarily want to reduce the number of required courses (at least some of us do not). But must we be held to the same timetables as others—so many hours or months or years of a certain subject—if we are able to grasp the fundamentals and move on to a more complex treatment? Or to a new subject altogether?

  Writer and filmmaker John Sayles describes the kind of education that worked best for him:

  > In general, I feel like what was most helpful about school when it worked was the existence of a structure, but with the leeway to go beyond it if you had the inclination. I think both the structure and the freedom were equally important; the structure giving something to react to or from, and the freedom being that there was some encouragement for original thinking as long as you didn't make too much trouble.

- **The college preparatory curriculum in the United States generally does not require hard work from able students.** Students who never have opportunities to work to their abilities never learn to do so. A recent study of America's highest achieving students conducted by *Who's Who Among American High School Students* found that most of these students study 1 hour or less a day; only 21

Urban Scholars Middle School Program

Urban Scholars provides a family of friends and caring adults for gifted and talented middle school students selected to participate from three of Boston's toughest neighborhoods. In an environment where one infamous principal declared, "There are no talented and gifted students at this school," these youngsters voluntarily compete for the opportunity to attend 2 hours of advanced math and science classes twice a week after their regular school day has ended. They also meet other rigorous standards, which include improving their regular school grades.

Founded in 1983 by the University of Massachusetts-Boston, Urban Scholars has since evolved into a panoply of year-round programs for both middle and high school students. It combines classes, projects, internships, mentorships, volunteer work, discussions, workshops, and trips. The program has been very successful in helping disadvantaged students succeed in school and go on to college.

Iowa-Grant Rural School District, Southwestern Wisconsin

The gently rolling farmland of this southwestern Wisconsin community is neatly manicured, reflecting the beliefs and values of its occupants. Hard work is central to the lives of these dairy farmers, and their children carry that value to school.

The K–12 Iowa-Grant Rural School District provides rigorous academic programs and encourages high achievement among all of its 831 students. The elementary schools, for example, use an interdisciplinary curriculum for gifted students called Growing Up Green. Themes based on types of conflict (e.g., good versus evil for grade 1; permanence versus change for grade 8) guide reading, language arts and writing, social studies, science, and critical thinking skills activities.

percent study 11 hours or more a week. One high school honor roll student indicated that she seldom received homework and studied only when she expected to be tested the next day. A high school valedictorian summarized the consequences of not learning how to work:

> I breezed through classes in 12 years, graduated from high school as the valedictorian, and then almost flunked out of college because I never learned to work hard at learning. I feel angry, jealous, and cheated about the potential that was lost as a result of my high school's lack of special programs for the gifted.

- **Small-town and rural schools often have limited resources and are unable to offer advanced classes and special learning opportunities.** Rural schools are the least likely to have special programs for highly able 8th-grade students, according to 1988 NELS data. The low population, poverty level, and generally low tax base prevent most rural districts from providing the same range of options for talented students that larger communities can provide. This is especially troubling because there are often fewer other community resources available in rural areas, making the school the primary center of intellectual and cultural life for students.

- **Specialized schools, magnets, and intensive summer programs serve only a fraction of the secondary students who might benefit from them.** Many larger school districts have established magnet schools to serve various students' needs. Some, such as the Bronx High School for Science which has produced many leading scientists and Nobel laureates, have existed for many years. Eleven states have established residential schools for advanced instruction in mathematics and science; other states have established Governor's Schools or intensive summer opportunities in a variety of subjects. These schools, however, are few and serve only a fraction of the students who would benefit from them.

- **Dual enrollment in secondary school and college is uncommon.** One solution to an unchallenging high school curriculum is to allow some secondary school students to enroll in higher education courses. Minnesota began a postsecondary options program in 1985 to allow high school juniors and seniors to take postsecondary classes at state expense. Earned credits count toward high school graduation, and once students have graduated from high school, they can also ask postsecondary institutions to accept these credits. A handful of other states have followed suit, but such arrangements are the exception rather than the rule.

Effective Programs for Talented Students

Over the past 20 years, while the regular school program focused on basic skills and minimum standards, programs for gifted and talented students served as laboratories for innovative and experimental approaches to teaching and learning. A variety of educational options were developed in programming and scheduling. Many new programs focused on complex thinking strategies and problem solving and used sophisticated teaching strategies.

Residential schools for gifted and talented students, summer programs like Governor's Schools, and the Talent Search academic programs have developed alternative teaching strategies and interesting curriculum approaches. National programs—such as Future Problem Solving, Odyssey of the Mind, National History Day, and the Westinghouse Science Scholars Program—promote and reward critical thinking and problem solving and are often carried out through the gifted and talented education programs in schools. Teaching strategies like the Paideia Program, Philosophy for Children, and the Great Books reading series also are often used in programs for gifted and talented students.

Although most of these programs were not designed exclusively for gifted and talented students, they usually have not been implemented in regular education because educators did not realize their potential for improving all of American education. Now, however, many educators believe that the knowledge and experience that gifted education has gained from these and other outstanding programs can be used to upgrade all of education and are calling for this to be done.

Many programs for talented students are so new and limited that long-term research to gauge their effectiveness has not been completed. The limited evaluations available, however, are encouraging. Through the new federal Javits Gifted and Talented Education Program, more in-depth studies are under way.

Javits grants projects seek out and provide educational programs for exceptionally talented students who are economically disadvantaged, speak limited English, or have disabilities. These programs are committed to finding and nurturing the strengths in children, providing promising students with important subject matter to study, and encouraging the habits of hard work. They demonstrate the kind of practices that should be available for many more economically disadvantaged children.

In Sum . . .

Effective programs exist around the country with wonderful teachers who challenge students to intellectual and creative heights. But most children with outstanding talents do not perform at high enough levels. They are restrained by the lack of depth in the regular school program and by the limitations of many special programs designed for them. Their regular classroom teachers make few accommodations for them, despite evidence that these students have mastered significant portions of the regular curriculum. And the special opportunities that do exist for them seldom sufficiently supplement the regular school program and vary greatly from state to state and from school to school. In addition,

"Perhaps the most lasting aspect of my primary education was a summer session for bright students held at University Elementary School, UCLA, between my fifth and sixth grades. The session focused on ancient Greek culture. We were encouraged to try everything from building wood models of Greek temples (though I also built a cabinet for my butterflies) to painting Greek warriors, reading Greek literature, and recreating a decathlon. I even had the temerity to rewrite the story of Jason and the Golden Fleece as a play and to cast, direct, and act in it (oh, the poor parents who had to watch!). There was something exciting about all those bright kids in one place, everyone learning and sharing without undue competition (the class was not, as far as I can recall, graded)."

—Robert Root-Bernstein,
biochemist and MacArthur Fellow

the practice of identifying gifted and talented students using mainly test data and grades has limited the access to special opportunities of many students who could benefit from them.

To counter these negatives for students with outstanding talents and to improve education for all of America's students, schools must

- Expand effective education programs and incorporate more advanced materials into the regular school program;
- Provide all students with opportunities to solve problems, analyze materials and situations, and learn from real-life experiences;
- Identify students who need individual or special opportunities, using test data only as appropriate;
- Serve students identified as having outstanding talent in many places—the regular classroom, a special class, the community, at a university or a museum, in front of a computer, or anywhere the opportunity meets the need; and
- Create flexible schools that enable all students, including the most able, to be grouped and regrouped according to their needs and interests.

Part III.

The Future of Education for the Nation's Most Talented Students

In today's climate of education reform, many questions about gifted and talented education remain to be answered. When school practice is being rethought and the norms of general education are changing, where does the education of children with outstanding talent fit? How do we raise the ceiling of educational accomplishment in our schools and provide appropriate opportunities for all? How can we use what we have learned about gifted education in the past 20 years to improve education for all youngsters and provide the caliber of schools we need for the future? What is involved in providing an excellent education for students with exceptional talent?

Emerging Views on Intelligence and Talent

In the past 20 years, groundbreaking research has challenged the long-held view of intelligence as a fixed, narrow concept measurable by any one test. It is now understood that intelligence is complex, takes many forms, and therefore requires that many criteria be used to measure it. This understanding has led educators to question traditional definitions of intelligence and current assessment practices and procedures. Performance on a single test is no longer a viable way to identify the myriad talents that students possess.

While researchers may disagree on the specifics, there is general agreement that even very bright children vary in the rate at which they learn and in the areas in which they excel. Most researchers agree that there are different ways to be intelligent and different ways that exceptional talent is demonstrated. Most agree that children should not be rigidly labeled and that more emphasis should be focused on the processes of developing potential in children.

Therefore, we can find outstanding talent by observing students at work in rich and varied educational settings. For example, educators can give many children the opportunity to take dance classes with an accomplished instructor and observe them. This enables us to identify

Fred is a white fifth-grade student from an economically disadvantaged family in a rural section of southern Indiana. He was selected for Project SPRING in Indiana based on teacher recommendations, even though his school records listed his IQ as 77 and his achievement test total battery score as the 46th percentile. One teacher explained, "When we have a class discussion he comes up with insights and depths of understanding that show more insight than anyone else in the class."

After enrolling in Project SPRING, Fred began to blossom. He thought, he wrote, he discussed. After 1 year in the program, he was on the honor roll, and he continues to do top-notch work.

the smaller number who have the interest and talent to study dance seriously. Likewise in computer science, educators can provide many students with the opportunity to explore computer technology so that we can identify those inclined to pursue advanced instruction on programming and theory. Providing opportunities and observing performance give the best information on children's strengths.

Definition of Children With Outstanding Talent

Neuroscience and cognitive psychology provide us with new insights into what it means for children and youth to be outstanding talents and require us to develop a new definition of this population. The term "gifted" connotes a mature power rather than a developing ability and, therefore, is antithetic to recent research findings about children. The following definition, based on the definition used in the federal Javits Gifted and Talented Education Act, reflects today's knowledge and thinking:

> **Children and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience, or environment.**
>
> **These children and youth exhibit high performance capability in intellectual, creative, and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided by the schools.**
>
> **Outstanding talents are present in children and youth from all cultural groups, across all economic strata, and in all areas of human endeavor.**

To put this definition into practice, schools must develop a system to identify gifted and talented students that

- Seeks variety—looks throughout a range of disciplines for students with diverse talents;
- Uses many assessment measures—uses a variety of appraisals so that schools can find students in different talent areas and at different ages;
- Is free of bias—provides students of all backgrounds with equal access to appropriate opportunities;
- Is fluid—uses assessment procedures that can accommodate students who develop at different rates and whose interests may change as they mature;
- Identifies potential—discovers talents that are not readily apparent in students, as well as those that are obvious; and
- Assesses motivation—takes into account the drive and passion that play a key role in accomplishment.

With a broader understanding of intelligence, and with many ways to identify and develop talent in children, we can build the excellent

schools we need for the future and provide our exceptional students with better opportunities.

Recommendations

The responsibility for challenging students with exceptional talent must be shared by many sectors of society and levels of government. Society must first value intellectual and artistic accomplishment in children as much as it values athletic ability or physical beauty. In addition, schools and parents need to encourage hard work, hold high expectations for students, and push students to the outer limits of their potential. Achieving such a goal requires that appropriate educational options be made available for talented students. The following national recommendations for action would provide pathways toward an education that allows American students to be as well prepared as those anywhere in the world:

Establish challenging curriculum standards. The nation must establish performance standards in the core subjects that challenge students performing at the highest levels. As state and local governments develop standards, they must ensure that the standards are sufficiently high to challenge talented students. As the floor is raised for all students, so must the ceiling be raised for students operating in the upper range of ability.

- Educators must develop assessment procedures based on standards that accurately measure the accomplishments of students who perform at the highest levels.

Establish high-level learning opportunities. The nation must establish comprehensive and advanced learning opportunities that meet the needs of children with outstanding talents in every school in the nation. Opportunities must be as diverse as the talents of the children and enable them to do more in-depth work in the core curriculum; accelerate the rate at which they learn the core curriculum; enroll in special classes in a specific interest area such as the arts; and work in such places as museums, libraries, scientific organizations, and special schools. Flexibility and varied opportunities are essential to meeting the needs of all students, including the talented.

- Schools also must assess students' levels of competence in the regular school curriculum in each of the core subjects and provide alternative learning opportunities for students who have mastered them.
- Communities must establish learning opportunities for students both inside and outside the regular classroom and both inside and outside the school building. Communities also must ensure that students have many options that draw on the community's resources.

Ensure access to early childhood education. The nation must ensure that all children, especially economically disadvantaged and minority children, have access to an early childhood education that develops their potential. Young children need rich, varied learning opportunities and teachers and caregivers who look more for their strengths and potential rather than for their perceived weaknesses.

"Danger lies in the current cult of creativity and self-expression, which serves as a pretext for not teaching solid knowledge even to gifted students. The fact is that a gifted person needs even more knowledge than others before he or she can hope to make a contribution to his or her field."

—Paul Oskar Kristeller, MacArthur Fellow

When Mary was a fifth-grade student on an Indian reservation in Montana, she conducted a sophisticated research project in the school's program for high-ability students. To find out how rapidly the Crow language was being replaced by English among Crow children, Mary surveyed students in grades 4–12 in six area schools. Mary painstakingly tabulated the survey responses. She found that 68 percent of 12th-grade respondents spoke Crow, but percentages steadily decreased by grade level. Among fourth graders, only 38 percent spoke the Crow language. The next year, Mary spoke with the school district administrators at their weekly meeting to present her survey results and suggested that the school district have regular Crow language classes.

- Communities must establish programs that work with parents and other primary caregivers to help them understand ways to nurture the talents of their children and help them achieve in school.
- Schools must establish a system of communication between preschools and elementary schools to ensure that student strengths identified in preschool continue to be nurtured in elementary school.
- Communities must train preschool teachers how to identify and develop strengths in children.

These suggestions are not intended to imply that schools should label preschool and primary students as gifted and talented. They should not. Instead, preschools and primary schools should develop a curriculum for *all* that nurtures the strengths of children and encourages its staff to do the same.

Expand opportunities for economically disadvantaged and minority children. The nation must increase opportunities for economically disadvantaged and minority children with exceptional talent to participate in advanced learning experiences. Special efforts are required to overcome the barriers to achievement that many economically disadvantaged and minority students face. Stronger preschool programs and a stronger regular curriculum for all students will aid in this effort. In addition, schools and communities must develop strategies to serve students from underrepresented groups.

- The nation must support research and demonstration projects working to develop talent in diverse populations.
- Schools must eliminate barriers to participation of economically disadvantaged and minority students in services for students with outstanding talents.

Encourage appropriate teacher training and technical assistance. Teachers are the key to success in our vision of excellent education. They must be prepared to work with advanced materials and to use complex teaching strategies with a variety of students. Teaching materials appropriate for use with talented students also must be developed. The nation also must encourage the kind of teacher training, research, curriculum, and technical assistance necessary to improve educational opportunities for students with outstanding talent.

- The nation must conduct research on challenging curriculum, assessment standards, and successful teaching strategies.
- Schools must conduct training sessions for teachers on how to provide challenging curriculum and varied learning opportunities that accommodate the different needs of children.
- The nation must provide sufficient financial support from federal, state, and local governments, as well as from the private sector, to carry out these actions.

Match world performance. The nation must ensure that high-achieving students in the United States match or exceed the performance of high-achieving students anywhere in the world

- The nation must study and learn from the education policies and practices of nations whose top students perform well.
- The nation must ensure that tests of international comparisons provide accurate data on top-performing students around the world.

A Vision for Excellent Schools

Understanding the strengths and weaknesses of American education helps us to define the kind of schools we need to compete in the world economy. The schools we need in the future must provide a richer curriculum for all students, realize each student's potential, and develop outstanding talent. In the schools we seek

- All children progress through challenging material at their own pace. Students are grouped and regrouped based on their interests and needs. Achieving success for all students is not equated with achieving the same results for all students.
- Diversity is honored in students' backgrounds as well as in their abilities and interests. The classroom, school organization, and instructional strategies are designed to accommodate diversity and to find the strengths in all children.
- Students know that parents, educators, and other important adults in their lives set high expectations for them and watch them closely to ensure that they work to their ability and develop their potential.
- The community provides the resources needed to adapt and enrich the curriculum to meet student needs. School faculty and administrators ensure that community and school resources are matched with students' strengths and needs.
- Students gain self-esteem and self-confidence from mastering work that initially seemed slightly beyond their grasp.
- Students emerge from their education eager to learn and confident that they can join the intellectual, cultural, and work life of the nation.

Everyone wins in the schools we seek. All students have an equal opportunity to develop their talents and to display exceptional talent in educational settings that require sophisticated thinking and a high level of performance. All teachers search for the strengths and talents of their pupils and interests, and nurture those talents. Exceptional students pursue intensively their special talent, allowing the nation to grow intellectually, culturally, and economically stronger.

Greg brought Tchaikovsky's "Nutcracker Suite" to his first-grade class. "I've been wondering. . ." Greg said to his teacher. "There are some parts that are really happy, and some parts of it that are really sad. Do you think that Tchaikovsky wrote the sad parts when he was really sad and the happy parts when he was really happy? Or do you think that when he was really sad, he wrote the happy music to cheer him up and vice versa?" His teacher suggested he find the gifted and talented resource teacher so she could help him find what Tchaikovsky wrote during various periods of his life. Before the year was over, Greg carried out a research project using college-level texts to produce a "talking" book and tape containing his research and his answer to the questions.

Excellence—An Imperative

We must build better schools in order to create a better society. But we need better schools, too, because all children, including those with outstanding talents, deserve an education that helps each of them develop their special qualities. As we go about improving American education, this human element must not be ignored.

Eighteen-year-old Wayne from inner-city Detroit is just one of many youngsters around the nation whose life course was radically altered because he had the opportunity to participate in a program for gifted and talented students. Wayne, a National Merit Scholar, recalls his experience in the Minority Research Apprenticeship Program, a collaboration of the Detroit Public Schools and Wayne State University:

> I don't think I'll ever forget it. The first day I worked with the professor he came up to a chalkboard and drew all these nomenclatures, and I just sat there with my mouth open. In that lab, I personally synthesized two compounds for anti-cancer drugs, and I can still explain it in laymen's terms: I'm really tricking cancer cells into taking something they think they need to have to reproduce. But once it's inside, this compound kills the cells, like a wolf in sheep's clothing.

During the 9-week summer program, Wayne was particularly touched by the support and guidance he received from the University staff. "It wasn't just a summer program where you came and worked and left," he recalls. "We became very close to people."

This young man went on to win first-place honors in a science fair for an anti-cancer drug project. He subsequently received a full scholarship from Wayne State, where he enrolled in the highly selective Research Careers for Minority Scholars. Wayne eventually plans to earn an advanced degree in biochemistry or organic chemistry. America has many more Waynes who deserve similar opportunities.

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