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ABSTRACT

Criticisms leveled at the American education system are examined in this paper, which asserts that misinformation about Japanese education should not be used as a basis for educational reform in the United States. Commonly reported changes made against the American public school system are explored; they include lowered student intelligence, decreased standardized test scores and academic achievement, overly expensive schools, the lack of a relationship between educational funding and school productivity, and declining mathematics and science competition in the world market. A historical overview indicates that business and the elite citizenry have waged a campaign of disinformation that identifies the American school system as a failure. Another conclusion is that many reform efforts will create greater economic and educational disparity. Five alternative national education goals are outlined: school radiness for all (including the provision of preschool programs and adequate day and health care); equal access to operational facilities; the creation of politically and socially involved graduates; the highest paid teachers in the world; and equalized school funding. A total of 17 figures are included. (41 references) (LMI)

NCSS Board— I think this is valuable info for us to have! Margt

Educational Reform in an Era Of Disinformation !

David C. Berliner

Paper presented at the meetings of the American Association of Colleges for Teacher Education, San Antonio, Texas, February 1992.

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I am also grateful for the conversations on this topic with Gerald Bracey, and appreciative of the efforts of the staff at the Sandia National Laboratories for promoting more intensive debate on these issues.

Educational Reform in an Era of Disinformation

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It is not difficult to understand why so many people are concerned about schooling and youth. One only has to read newspaper headlines and summaries to learn why people think so poorly of the system that attends to the care of the next generation. For example, these stories were culled from the media:

OVERHEAD 1

Other similar stories exist, but these are enough to make clear the awful, brutal world of youth and the failure of public schooling. As the various writers of these reports note,

OVERHEAD 2

the evidence is quite clear that the Japanese public school system is a brutal and an enormous failure by most of the standards we as a nation have for schooling, save one, achievement in mathematics and science.

The Japanese system is one in which:

*Crude forms of cheating at the college level are rampant because there usually is no penalty for it.

- In a typical year during the 1980s, minors aged fourteen to nineteen accounted for 43.4 percent of all criminal offenders. 54 percent of all murder cases in the nation involved jobless youth.
- High school girls turn to prostitution for entertainment, curiosity, and as source of revenue--police report their rate up 262 percent.
- At a public junior high school a gang of six students had extorted $2,500 from about 120 classmates.
- A fourteen-year old student who was repeatedly tormented and beaten by school toughs hangs himself.
- Forty-four high school students go wilding, raid five shops for merchandise.
- Teen tortured by two school gang members, cigarettes used to burn his hands and back.
- Kids report feeling refreshed after beating up another child.
- Because they didn't like a lecture on how they might lead a better life, eight junior high toughs demanded an apology from their teacher. He refused, so they hit him, kicked him, threw his papers all around, and fought with ten other teachers as well. Finally the teacher knelt before the youths and apologized to avoid any further confusion.
- Ten percent of the nation's public middle schools request police guards for their graduation ceremonies.

OVERHEAD 1

- In a typical year during the 1980s, minors aged fourteen to nineteen accounted for 43.4 percent of all criminal offenders. 54 percent of all murder cases in the nation involved jobless youth. ("Youth Crime up 100% over 1976," Japan Times, 8-23-87)
- High school girls turn to prostitution for entertainment, curiosity, and as source of revenue--police report their rate up 262 percent. ("Number of minors taken into custody for prostitution increases dramatically," Japan Times, 1-30-86)
- At a public junior high school a gang of six students had extorted $2,500 from about 120 classmates. (Schoolland, Shoguns Ghost: The dark side of Japanese education, 1990, p. 121)
- A fourteen-year old student who was repeatedly tormented and beaten by school toughs hangs himself. (Schoolland, Shoguns Ghost, 1990, p. 121)
- Forty-four high school students go wilding, raid five shops for merchandise. (Schoolland, Shoguns Ghost, 1990, p. 122)
- Teen tortured by two school gang members, cigarettes used to burn his hands and back. ("Tokyo police report cases of bullying," Japan Times, 11-20-85)
- Kids report feeling refreshed after beating up another child. (Stanglin, D. "Japan's Blackboard jungle," Newsweek, 7-1-85)
- Because they didn't like a lecture on how they might lead a better life, eight junior high toughs demanded an apology from their teacher. He refused, so they hit him, kicked him, threw his papers all around, and fought with ten other teachers as well. Finally the teacher knelt before the youths and apologized to avoid any further confusion. ("8 junior high thugs attack 10 teachers," Japan Times, 3-26-86; "8 Angry students hurt 10 teachers," Daily Yomiuri, 3-2-86)
- Ten percent of the nation's public middle schools request police guards for their graduation ceremonies. (Schoolland, Shoguns Ghost, 1990, p. 179)

*Parents pay teachers "thank you" money for giving good grades and letters of recommendation to their children.

*A teacher was taunted by his colleagues for being too soft on students, so when a student on a field trip used a hair dryer--an act forbidden by the school--that teacher beat and kicked the student to death. At the trial the defense was that everyone at the school expected this teacher to use corporal punishment. This seemed perfectly reasonable to the judge, who was quite lenient in sentencing.

I became concerned about the possibility of erroneous information being disseminated by officials of our government when this same Japanese system of education was scrutinized by a team of visiting Americans, whose views were reported in the Japan Times under the headline: "U. S. Educators Marvel at Japan's Schools" (October 26, 1985). The then United States Assistant Secretary of Education, Chester Finn, a member of the study tour, said of the Japanese:

> They've demonstrated that you can have a coherent curriculum, high standards, good discipline, parental support, a professional teaching force and a well-run school. They have shown that the average student can learn a whole lot more. (Washington Post. October 19, 1985)

Herbert Walberg, a distinguished educational researcher, was on the visiting panel and concurred with Dr. Finn that much in the

Japanese system could help to solve the problems of education in the United States. He said:

> I think it's portable. Gumption and willpower, that's the key. (Washington Post, October 19, 1985)

Knowing something about the Japanese system, I asked myself: Do we have the gumption and will power to resist turning our schools into institutions where 26,000 junior high school students and 4,000 elementary school students refuse to go to school at all because they are tormented by teachers and bullied by students, and where 47,000 others miss at least fifty days of schooling per year because of the abuse they must face at school (Chicago Tribune, November 24, 1985)? Where the number of pleats allowed in a girl's skirt is specified? Where students with curly hair are required to carry certificates attesting that their hair is not permed? Where some of the teachers at a middle school kicked and beat the students regularly, in full view of other teachers, finally killing one student by bashing in his skull and were then supported by all the other teachers who threatened the students to make them remain silent? Where a Tokyo mother questioned the school system for allowing teachers to beat, kick, and drag her son around the school yard frequently over a three year period, at times hammering his head against a goal post, and once throwing him in a garbage dump and jumping on him, because the student in question once skipped Sunday soccer practice to go fishing with a friend (see Schoolland, 1990, for additional documentation of this fundamentally cruel and

clearly un-American system. Many of the news reports cited in this paper are from his book on Japanese education).

I am pleased that there are no student offenses in the United States for which such cruelty on the part of teachers would be tolerated. But in Japan, over-regulation and harsh treatment of students are common. We certainly need "willpower and gumption" alright, but it is to resist a system that is at odds with our culture's humane and enlightened views of childhood and schooling. We certainly need that gumption and willpower to resist importing a system that has been recognized as a failure in Japan, according to their own prime minister and his council of advisors, who have said:

> Bullying, suicides among school children, dropping out from school, increasing delinquency, violence both at home and at school, heated entrance exam races, over-emphasis on scholastic ratings, and torture of children by some teachers are the result of the pathological mechanisms that have become established in Japan's educational system (Japan Times, April 24, 1986).

I have a hundred criticisms of our school system and my list grows daily. I hope that we can improve our system, since public education in a vibrant. dynamic democracy should never be considered finished. But the reforms should be based on facts about the system and input from its practitioners. Reforms proposed by politicians, business leaders or other citizens should not be

undertaken without reliable evidence or credible stories of experience to back them up. I was concerned that if so much nonsense could be spoken and written in the United States about the glories of the Japanese educational system, perhaps the information being disseminated about the American system was also false. I began, therefore, to examine the validity of the criticisms made about our educational system. My findings are instructive.

Let us look, therefore, at some of the commonly repeated charges made against the American public school system. But this time, instead of simply agreeing with them, because they appeal to our suspicions and fears, let us ask whether any credible data exist to make us question their validity. Perhaps the charges will turn out to be only partially true. Perhaps our public education is failing certain students and their families, but not others, and perhaps it is not even failing most of the students in the public schools. Perhaps Americans have been lied to, because when nations have economic difficulties or go through social change, their leaders look for scapegoats, and the American school system is a handy one. Perhaps we are changing into a plutocracy, where a wealthy elite chooses not to use the public schools, and participates in undermining confidence in that system so as to promote the conception of schooling as a commodity, to be bought like medicine, to be regarded as a privilege rather than a right of every American. Perhaps we are in a peculiarly American cycle, where every generation or so we like to play "kick the-teacher." We will look again at the reasons underlying the

charges made, but for now, let us look more closely at the changes themselves.

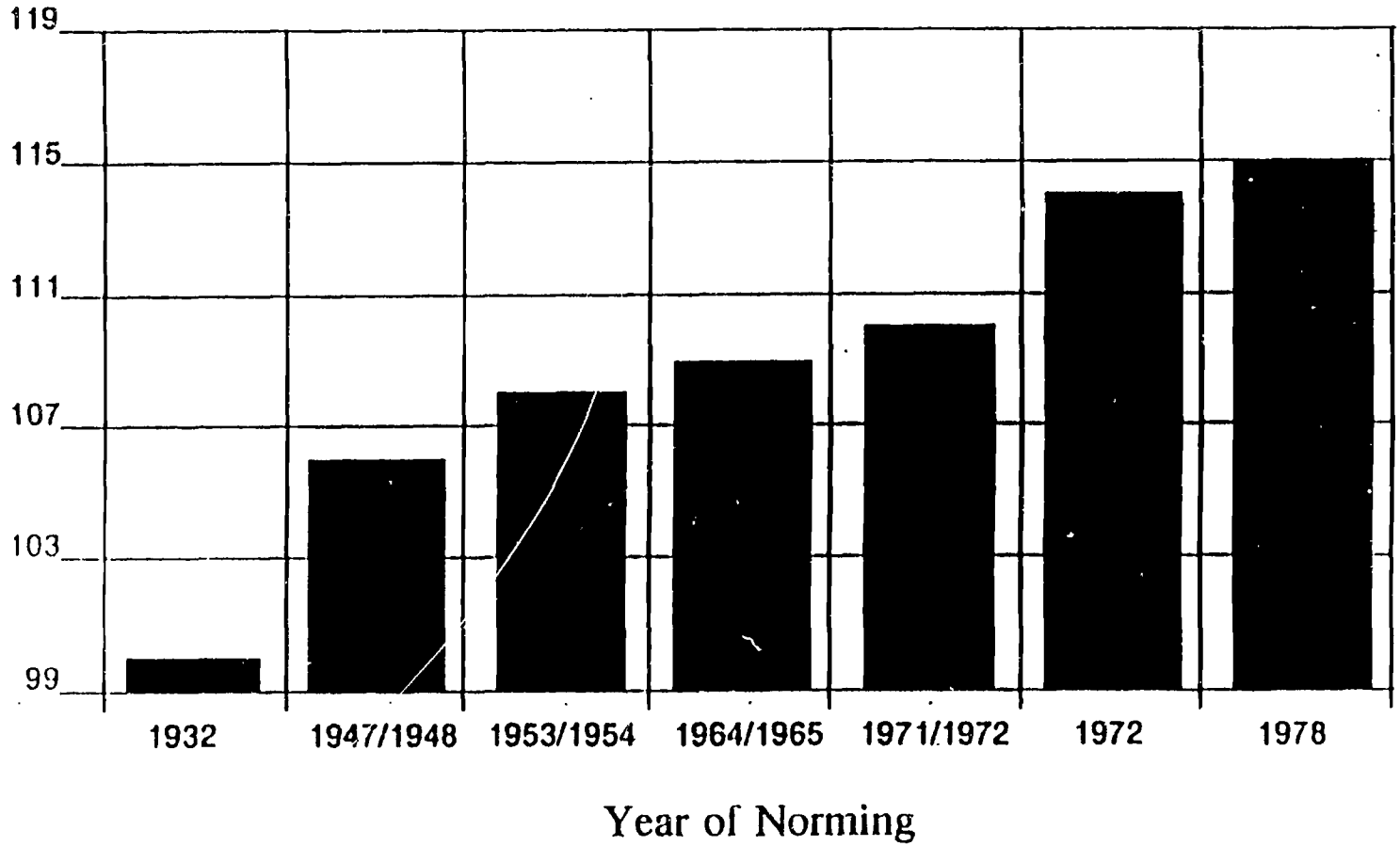
Charge: Today's youth are not as smart as students used to be.

I have heard versions of this charge repeated by politicians, news commentators, editorial writers, deans of colleges of education, and my neighbors, friends, and relatives. A related charge is that today's youth can not think as well as they used to. We can start examining this claim with cross-sectional data about intelligence test performance.

Intelligence test scores in the United States are up, according to psychologist J. R. Flynn, reporting in the prestigious and rigorously peer-reviewed journal Psychological Bulletin (1987). In fact, the scores are not just up, they are up dramatically.

OVERHEAD 3

Since 1932 the mean IQ of white Americans aged 2 to 75 has risen about .3 points per year. Today's students actually average about 14 IQ points higher than their grandparents did, and average about 7 points higher than their parents did on the well-established Wechsler or Stanford-Binet Intelligence Tests. That is, as a group, today's school age youth are scoring nearly one standard deviation higher than the group from which have emerged the recent leaders



Wechsler and Stanford-Binet IQ for White Americans' Ages 2-75 Years, Used in the Standardization Samples for Norming the Tests. (After Flynn, 1987, p. 177, Table 7)

Average Gain Per Year in American IQ Test Performance = .30 points

of government and industry. The data reveal, for example, that the number of students expected to have IQs of 130 or more--a typical cut off point for giftedness--is now about seven times greater than it was for the generation that is now retiring from their leadership positions throughout the nation, and complaining about the poor performance of today's youth. In fact, the number of students above 145 IQ points is now about eighteen times greater than it was two generations ago. Moreover, and perhaps more important, the increase in IQ throughout the industrialized world appears not to be in informational areas alone, as measured by the vocabulary or mathematics sections of the intelligence test. Rather, the changes in performance have been most pronounced in the decontextualized, abstract, problem-solving areas of the tests, the parts that are purer measures of general intelligence. Flynn concluded that he was not sure what the intelligence tests really measure, but since 1950 IQ gains on those tests, in industrialized nations, reflect a "massive" increase in abstract problem solving ability. But he would not speculate on what might have produced such an effect. Was it public health? Increased schooling? Better schooling? Changes in the gene pool within industrialized nations? Why would measured IQ in the United States increase so much since the 1930s?

Torsten Husén, the distinguished Swedish educational researcher, and member of the National Academy of Education, working with Dutch researcher Albert Tuijnman (1991), helped to answer that question. They were persuaded by Flynn's data to reexamine the files of an older study conducted in Malmo, Sweden, a

ten-year longitudinal study of intelligence, from childhood to adulthood, among 671 Swedish young men. Using contemporary statistical techniques, unavailable at the time of the original study, they checked whether changes in IQ had occurred, and if so, what might explain them. Their conclusion was unequivocal. After the variations of home background and childhood IQ are removed, schooling was seen to have a direct and substantial effect on adult IQ. The authors concluded that

> ....schools not only confer knowledge and instrumental qualifications but also train and develop students' intellectual capacity. The results [of this study] provide support for the thesis...that IQ as measured by group intelligence tests is not stable but changes significantly...[and] that the amount and quality of schooling experiences to which children are exposed are implicated in the observed changes in measured IQ.... [Apparently] schooling co-varies with and produces positive changes in adult IQ. (Husén & Tuijnman, 1991, p. 22)

One further study in this area is of interest. Two Israeli researchers (Cahen & Cohen, 1989) asked a simple but well-known question in the prestigious journal Child Development: Which comes first, the chicken or the egg? In this case, referring to the connections between IQ test performance and school achievement as one gets older, they asked: As you grow from year to year, does intelligence, as measured by an intelligence test, determine school achievement, or does school achievement determine intelligence? That is, do you

have to be intelligent to profit from schooling, as is generally believed, or do you have to profit from schooling to become intelligent, as measured by an intelligence test? From a large data set they tried to determine the direction of the relationships. They were firm in their conclusion. School achievement was the primary factor associated with changes in intelligence test performance. Intelligence did not appear to be the causal factor in growth in school achievement. A coherent set of similar findings are analyzed by the respected psychologist Stephen Ceci of Cornell (1991), in the rigorously reviewed journal Developmental Psychology. In his review we find convincing evidence that the skills measured on intelligence tests and the processes underlying intelligence test performance are taught and learned in school. Estimates of the magnitude of this influence range as high as six IQ points lost per year of schooling missed. It has become clear that the more schooling you acquire, the smarter you will appear on the tests. The corollary is one that our democracy is having difficulty facing, namely, that higher social-class standing will make a child intelligent, at least as measured by tests of intelligence. Higher social-class standing allows parents to buy high quality day care, preschool, and K-12 schooling; permits the purchase of instructional toys, encyclopedias and computers; and ensures first-rate health care. As the number of children in poverty grows, and two million more were added to the list this past decade (National Commission on Children, 1991), the continuous rise in intelligence test scores in this country is likely to stop and the cause for that will not be found in schools, but in a society that is witnessing a reduction in the standard of living for eighty percent of

its people (Reich, 1991). The blame for the decline, however, is likely to be placed on the schools.

Let us summarize what we have learned from these studies of intelligence. First, average intelligence, particularly decontextualized, abstract problem-solving, of the kind measured in some IQ tests, has risen dramatically over a generation. Second, a good candidate for the explanation of such large effects is the increase in educational opportunity provided over this time period. And third, there is now reason to believe that it is in large part educational opportunity that causes successful intelligence test performance, rather than intelligence as measured by performance on intelligence tests, being the cause of school success. Perhaps our children are not less able then their parents, but instead quite a bit more able. Perhaps, also, our educational systems are not worse than they used to be, but better than they have ever been. What else might account for the fact that in 1978 90,000 high school students took Advanced Placement (AP) tests for college credit, while in 1990 that number had increased 255 percent to 324,000 students, who took a total of 481,000 different AP tests (Educational Testing Service, 1991)? Although the mean score dropped over this period eleven one-hundreths of a point, the number of Asians taking the AP tests tripled, the percentage of African-Americans taking the examinations doubled, and the percentage of Hispanics quadrupled. Something in the schools must be working correctly.

Let us now go on to look at our students' performance on other aptitude tests over the time period during which they were allegedly losing some of their smartness. We can begin with the test that has often made the headlines throughout our nation.

Charge: The Scholastic Aptitude Test (SAT) has shown a marked decrease in mean score over the last twenty-five years, indicating the failure of our schools and our teachers to do their jobs.

This misleading statement is so often repeated that it is hard to correct. But let us try to get it straight. To be sure, since 1965 there has been a steady decline in the average SAT score for our nation's youth. The decline however, has been only 3.3 percent of the raw score total, about five fewer items answered correctly over twenty-five years. The explanation for this loss is simple and should fill educators with great pride, not shame. Why? Because much greater numbers of students in the bottom sixty percent of their class have been taking the test since the 1960s (Carson, Huelskamp, & Woodall, 1991). As educational opportunities and higher education became available to rural Americans and to members of traditionally under-represented minorities, more of these students started taking the SAT. Since they were more frequently from impoverished communities and from schools that offer a poorer academic curriculum and fewer advanced course offerings, it is not surprising that they tended to attain lower scores than advantaged, suburban, middle-class white students. This is why the mean number of items

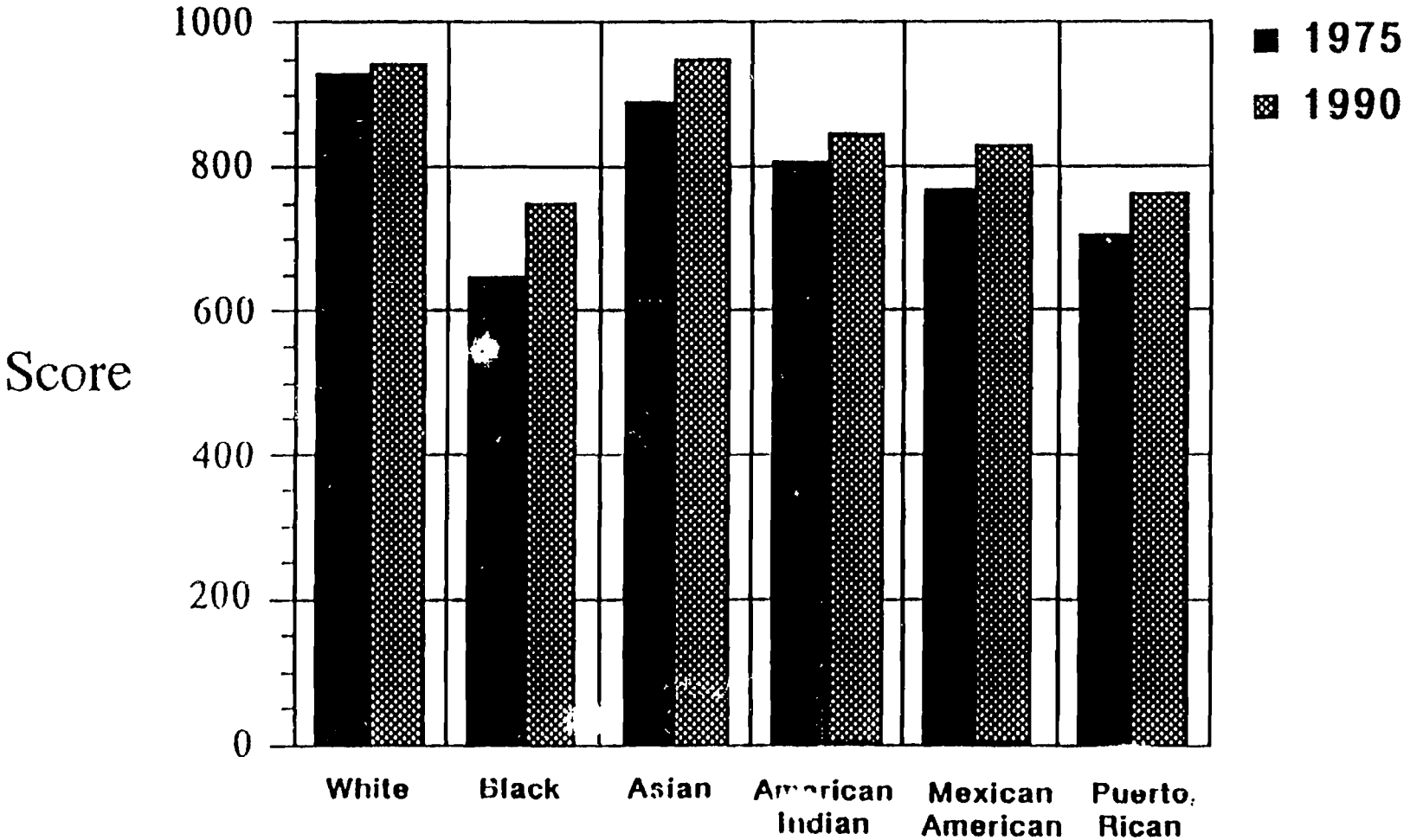
correct is less than it was, and most of that drop occurred between 1965 and 1975, not since. As an educator I am filled with pride that we have played a major role in the achievement of two of America's most prized goals of the 1960s--a higher high-school graduation rate, particularly for minority children, and increased access to higher education for everyone. We accomplished this with only a loss of correct responses to about five of the items used in computing the SAT scores. A remarkable achievement, I think, particularly when you look at other data.

For example, one fact that is rarely acknowledged when the media interview those who see the sky falling and the nation endangered because of the decrease in SAT scores is rather startling.

OVERHEAD 4

From 1975 to 1990 the mean SAT scores of white, African American, Asian-American, Native-American, Mexican-American and Puerto Rican high school students have gone up (Carson, Huelskamp, and Woodall, 1991). A government-funded report by the scientists of the Sandia National Laboratories makes the important observation that every one of the sub-groups for whom there are data has increased its average score on the SAT over the time period when the mean dropped. The most likely cause of this increase in measured achievement is the improvement in their education.

SAT Subpopulation Scores



(Adapted from Carson, Huelskamp and Woodall, 1991, p. 41, From Data Supplied by the Educational Testing Service and the National Center for Educational Statistics)

OVERHEAD 4

13A

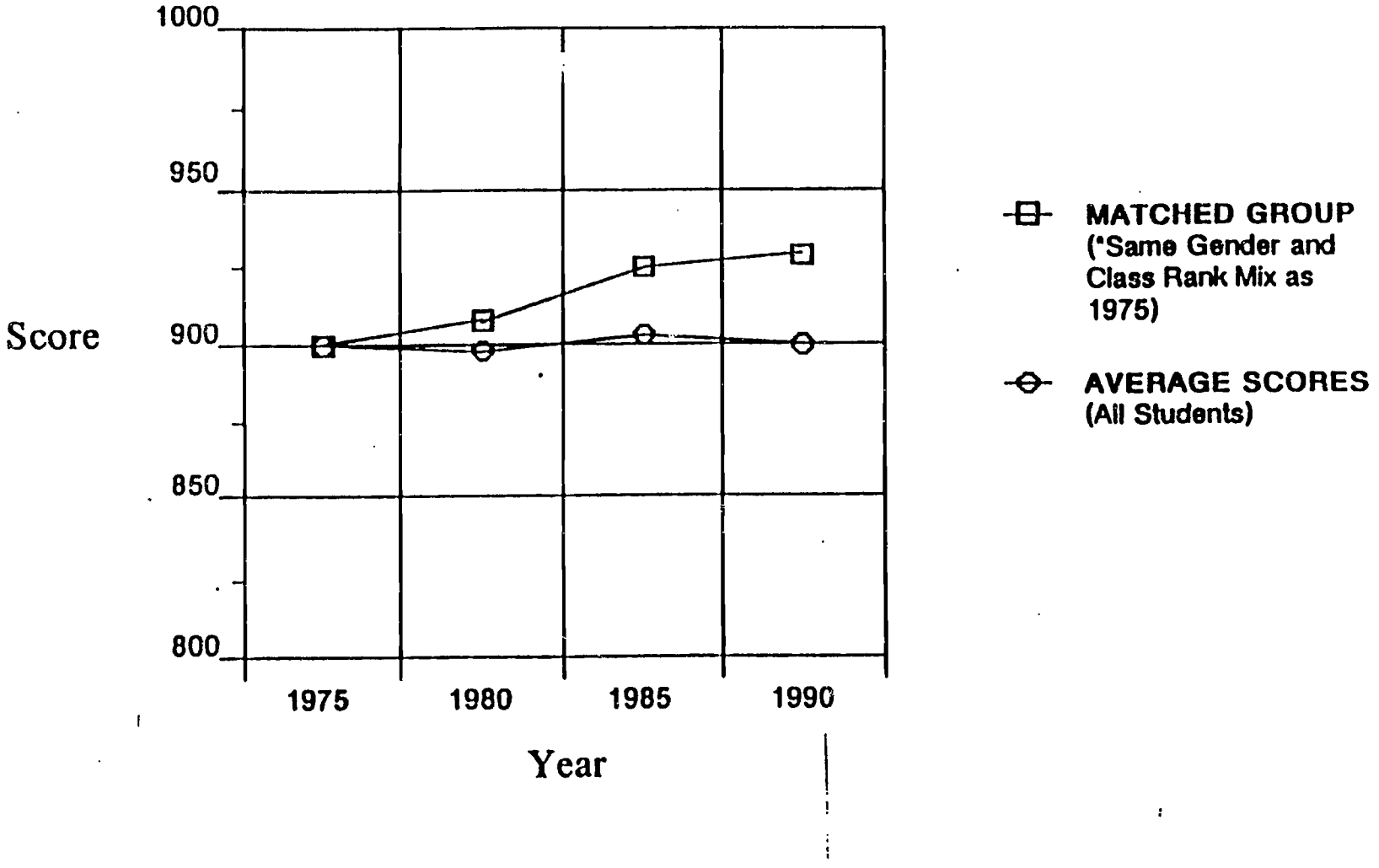
Finally, I call your attention to the next overhead.

OVERHEAD 5

Here we see, in the lower line defined by circles, the SAT performance of all test takers between 1975 and 1990. As I noted, it is unusually stable over this time period. But more important is the higher line, defined by squares. This is the performance of students from 1975 to 1990 who match those who took the test in 1975 in terms of demographic variables such as rank in high school class and gender. When we follow their performance over the years, we find something to fill the heart of every educator with pride. We see an increase of about one-third of a standard deviation in SAT performance. This is an effect size of considerable magnitude among these advantaged, primarily white youth, who were supposedly achieving less because they suffered from harmful desegregation policies including forced busing, low standards of performance, poor teachers, no homework, too much television, low morals, and a host of other plagues that uninformed critics of education believe are affecting the performance of students today.

What makes this group of college-bound high-achievers so much better than their 1975 peers? Is it cleaner air or water? Improved diet or exercise? I believe a good candidate for the credit is the continuous improvement of the schools they attend. What adds more to my pride is that Educational Testing Service, the developers of the test items for the SAT, has admitted that the SAT today is

SAT Scores of Students Who Were Like the 1975 Test Takers



(Adapted from Carson Huelskamp & Woodall, 1991, p. 47)

OVERHEAD 5

more difficult than it was in 1975 (Carson, Huelskamp, & Woodall, 1991).

What have we learned about our students from these data sets? Three things stand out. First, the supposedly great loss in America's intellectual capital, as measured by the average score on the SAT examination, is trivial, particularly since the average scores of every minority group have been going up for fifteen years, and even the traditional college bound students (those white middle-class students more likely to have taken the examination in 1975) are doing dramatically better today. Second, more American students are graduating from high school and thinking about college. That is why the mean SAT score did fall somewhat. Third, the data we have from this well-accepted indictor of educational achievement will not support the accusation that, overall, we have a failing school system and inadequate teachers. The public and many educators bought this spurious charge, and they should not do so any longer.

Charge: The performance of American students on standardized achievement tests reveals gross inadequacies. Despite our best efforts and extra expenditures, test scores for many schools stay below the nation's average.

Let us examine this canard by first looking at the data collected by the National Assessment of Educational Progress (NAEP). These are data that should convince anyone that, at a minimum, the sky is not

falling. The NAEP tests are given to a national sample of 9-, 13-, and 17-year olds in the subject matters of mathematics, science, reading, writing, geography, and computer skills. The analysis of these data by the scientists of the Sandia National Laboratories (Carson, Huelskamp, and Woodall, 1991) suggests that since the 1970s modest gains, at best, have been the rule. But what is more important, they state unequivocally that "the national data on student performance does not indicate a decline in any area." And they underlined the "any" in their report. Their conclusion was that "students today appear to be as well educated as previously educated students" (p. 12).

This particular set of standardized tests, purporting to be the nation's report card, says only that our students are performing the same over time. But there are other data in which we can take greater pride. Let us examine the standardized tests that states and school districts buy, adjust their curriculum to, and whose results are reported to the public in local newspapers every year.

According to one of the nation's most respected figures in educational measurement, Robert Linn, and his colleagues Graue and Sanders (1990), when you investigate the norming procedures used with the most commonly purchased standardized tests, you find that it takes a higher score now to hit the fiftieth percentile rank than it did in previous decades. For example, on average, students in the 1980s scored higher on the California Achievement Test (CAT) than they did in the 1970s. Similarly, on the venerable Iowa Test of Basic Skills (ITBS), at the time of the last norming of the test, the test

developer said "Composite achievement in 1984-85 was at an all-time high in nearly all test areas." The same trend was found in the renorming of the Stanford Achievement Test (SAT), the Metropolitan Achievement Test (MAT) and the Comprehensive Tests of Basic Skills (CTBS). The data showing growth between the norming samples used the last time a test was normed and the most recent time the test was normed have been collected. The results are unambiguous: In both reading and mathematics we find meaningful annual gains in percentile ranks from one representative norming sample to the next.

OVERHEAD 6

OVERHEAD 7

Major standardized tests are renormed, on the average, approximately every seven years. A reasonable estimate according to Professor Linn (personal communication) is that, over one generation, norms have been redone around three times That means that today's youth is scoring about one standard deviation higher than their parents did when they took the test. We can estimate that around eighty-five percent of today's public school students score higher on standardized tests of achievement than their average parent did. But the high-jump bar keeps getting higher, and it takes a higher jump today than it did around 1965 to hit the fiftieth percentile.

While on the subject of standardized test performance, we should also examine the social studies survey developed by Drs. Diane Ravitch and Chester Finn. Dr. Ravitch is currently Assistant Secretary

Yearly Increase in Percentile Rank for a Reading Test Score at the Median in the Last Norm Group, Compared to the Most Recent Norm Group (After Linn, Graue, and Sanders, 1990, p.12)

GRADE	CAT	CTBS	ITBS	MAT	SRA	STANFORD	NAEP	AVERAGE YEARLY GAIN	AVERAGE GAIN OVER 7 YEARS (TYPICAL RENORMING PERIOD)
1	40	12	13	29	-05	28	--	1 95	13 7
2	20	17	17	07	02	10	--	1 22	8 5
3	17	-03	16	19	02	15	03	1 07	7 5
4	16	1.3	17	07	-02	05	--	93	6 5
5	20	8	16	10	03	05	--	1 03	7 20
6	16	13	17	09	-05	05	--	92	6 4
7	23	10	16	13	-03	05	00	91	6 4
8	16	8	14	10	-07	02	--	72	5 0
								1 03 = OVERALL YEARLY GAIN	7 63 = TYPICAL GAIN IN PERCENTILES FOR MEDIAN STUDENTS FROM THE LAST NORMING TO THE PRESENT NORMING

OVERHEAD 6

Yearly Increase in Percentile Rank for a Mathematics Test Score at the Median in the Last Norm Group, Compared to the Most Recent Norm Group (After Linn, Graue, And Sanders, 1990, p. 12)

GRADE	CAT	CTBS	ITBS	MAT	SRA	STANFORD	NAEP	AVERAGE YEARLY GAIN	AVERAGE GAIN OVER 7 YEARS (TYPICAL RENORMING PERIOD)
1	23	30	04	17	17	38	..	215	151
2	20	37	07	13	05	25	..	178	125
3	19	22	07	21	-10	22	05	123	86
4	16	23	13	10	-03	20	..	132	92
5	19	28	11	16	05	20	..	165	116
6	19	28	11	14	00	18	..	150	105
7	21	25	14	03	02	15	00	123	86
8	26	18	14	07	00	18	..	139	97
								153 OVERALL YEARLY GAIN	107 TYPICAL YEARLY GAIN IN PERCENTILES FOR MEDIAN STUDENTS FROM THE LAST NORMING TO THE PRESENT NORMING

OVERHEAD 7

of Education and Director of the Office of Educational Research and Improvement. Dr. Finn held those jobs during the Reagan administration and now continues to be an advisor to the Secretary of Education and others who believe, as he does, that public schools and the teachers that staff them are failures.

In 1987 Drs. Ravitch and Finn released the gloomy book What Our 17-Year-Olds Know. Their answer was that seventeen-year-olds know embarrassingly and shockingly little! Their conclusions were part of a barrage of similar arguments made to the American people by E. D. Hirsch in his book Cultural Literacy (1987), Alan Bloom in his book The Closing of the American Mind (1987), and William Bennett in his report To Reclaim a Legacy (1984). The popular press, of course, promoted the claim that today's children knew less than they ever did and, therefore, that we were surely a nation at risk. The authors and the editorial writers throughout the land seemed to see nothing but doom for America if we didn't return to our old ways, to our halcyon days as a nation and as a people.

Dale Whittington (1991), writing in a prestigious and rigorously peer reviewed journal has thoroughly examined the claim by Ravitch and Finn that the seventeen-year-olds of the 1980s knew less than their parents, grandparents, or great grandparents. She sought out the social studies and history tests administered from 1915 until recently, and equated them as best one can using post-hoc procedures. She compared content covered, difficulty, scoring procedures, types of students taking the exams, and so forth. She was

able to compare student performance across time on some topical areas and some eras, such as the Civil War or the colonial period. A quick summary of her research is that students have never known as much social studies material as the test developers wanted them to know. Every generation of adults has a tendency to find the next generation wanting. This social phenomena has been recorded for about 2,500 years, since Socrates condemned the youth of Athens for their impertinence and ignorance. Ravitch and Finn are in this grand tradition, disappointed that the next generation does not know what they do.

Whittington was also able to find forty-three items on the Ravitch and Finn test that corresponded to items given in other tests at other times. So the validity of their claim of a decline in historical knowledge could be checked. On that set of items, today's students were less knowledgeable on about one-third of the items. They scored about the same on about one-third of those items. And they scored better than past generations on about one-third of the items. When compared to historical records, the data in Ravitch and Finn's study do not support their charge that today's seventeen-year-olds know less than they ever did.

Whittington correctly points out that one of the reasons for the conclusions drawn by Ravitch and Finn was that they designed a norm-referenced test, where each item was to have a difficulty level of about .50. Such tests, by design, will have a mean of approximately fifty percent. If you then use that test in a criterion-referenced

manner, indicating arbitrarily that a passing grade is sixty percent, you have ensured that the vast majority of your students have failed the test. Such flawed logic was used by Drs. Ravitch and Finn, and the press dutifully reported on the decline in American students' culture, values, knowledge, morals, and everything else except their weight.

Whittington concludes that

> ....the perception of decline in the "results" of American education is open to question. Indeed, given the reduced drop-out rate and less elitist composition of the 17-year-old student body today, one could argue that students today know more American history than did their age peers of the past.
>
> Advocates for reform of education and excellence in public schooling should refrain from harkening to a halcyon past (or allowing the perception of a halcyon past) to garner support for their views. Such action...is dishonest and unnecessary. Indeed, excellence is a goal that should be advocated on its own merits. (p. 778).

What may we reasonably conclude from these studies of standardized tests? First, there is no convincing evidence of a decline in standardized test performance. This is true of intelligence tests, the SAT, the NAEP tests, and the standardized achievement tests used by local school districts. If any case for change in these scores can be made, it is that the standardized aptitude and achievement test scores

are going up, not down. Educators working under almost intolerable conditions in some settings have not as a group failed society. Rather, it appears that society has failed education. It is incredibly difficult to keep academic achievement constant or improve it with increasing numbers of poor children, unhealthy children, children from dysfunctional families, and children from dysfunctional neighborhoods. Yet the public school system of the United States has actually done remarkably well as it receives, instructs, and nurtures children who are poor, without health care, and from families and neighborhoods that barely function. Moreover, as we shall see, they have done this with quite reasonable budgets too.

Charge: Money doesn't matter. School people are always saying they need more money but there is no relationship between amount spent on education and the productivity of the schools.

This charge is recognized as false by everyone connected with education, but accepted as truth by uninformed taxpayers and politicians. Let us look first at data correlating SAT scores with money spent by state (Capulsky & Ducoffe, 1992) .

OVERHEAD 8

In this table we see that the seven states spending the least on education, averaging about $3,200 per pupil per year, spend on the education of their youth about half of what is spent by the seven

Public School Expenditures Per Pupil: Comparison of Lowest and Highest Spending States

State	School Expenditures Per Pupil: 1989-1990	Average SAT Score: 1990
Lowest Spending States		
1) Utah	$2733	1031
2) Idaho	3016	968
3) Mississippi	3220	996
4) Arkansas	3272	981
5) S. Dakota	3312	1061
6) Louisiana	3313	993
7) Alabama	3319	984
Highest Spending States		
1) Maryland	$5887	908
2) Rhode Island	6253	883
3) Massachusetts	6740	900
4) Alaska	7252	914
5) Connecticut	7930	901
6) New York	8165	882
7) New Jersey	8439	891
Median Values		
Low Spenders	$3272	993
High Spenders	7252	900

Source: Copulsky, William & Ducoffe, Robert, (1992), Why raising educational expenditures can lower SAT scores.

OVERHEAD 8

states with the highest per-pupil expenditures. Furthermore, when you look at the average SAT scores for those states, you see that the lowest spending states seem to clearly outperform the highest spending states. From such data one can easily infer that money does not matter or that the lowest spending states are incredibly efficient and that the highest spending states are not. Such might be the simple view. Now let us look at the percentage of high school seniors in these states taking the SAT in 1990.

OVERHEAD 9

The highest spending states have, on average, eleven times higher percentages of their students taking the SAT than the lowest spending states. These data are related to comments I have already made, about the kinds of students who nowadays take the SATs. These data force us to consider an important question regarding the productivity of our schools, particularly schools with the hardest-to-teach children. What should our criteria be for evaluating the American schools of the twenty-first century? Should we concentrate on the SAT score or should we strive for the development of more highly educated men and women? Should high school educators focus on getting their students to answer more items right on the test, or should they be focusing on getting more of their students to go to college? Working under difficult conditions, with a greater at-risk population, the highest spending states posted a loss of up to ten items or about seven percent of the raw score points on the SAT, but they posted an eleven hundred fifty percent increase in the

Public School Expenditures Per Pupil: Comparison of Lowest and Highest Spending States

State	School Expenditures Per Pupil: 1989-1990	Average SAT Score: 1990	Percent of H. S. Seniors Taking SAT: 1990
Lowest Spending States			
1) Utah	$2733	1031	5 %
2) Idaho	3016	968	17
3) Mississippi	3220	996	4
4) Arkansas	3272	981	6
5) S. Dakota	3312	1061	5
6) Louisiana	3313	993	9
7) Alabama	3319	984	8
Highest Spending States			
1) Maryland	$5887	908	59 %
2) Rhode Island	6253	883	62
3) Massachusetts	6740	900	72
4) Alaska	7252	914	42
5) Connecticut	7930	901	74
6) New York	8165	882	70
7) New Jersey	8439	891	69
Median Values			
Low Spenders	$3272	993	6: %
High Spenders	7252	900	69 ← (1,150% increase in the number of students, thinking about college attendance)

Source: Copulsky, William & Ducoffe, Robert, (1992). Why raising educational expenditures can lower SAT scores.

OVERHEAD 9

percent of high school seniors thinking about going to college. What better use of money can one think of? Particularly when you realize that a good share of the higher expenditures per-pupil in those high spending states is due to a) the extraordinarily high extra costs of special education, a natural consequence of poverty and illness; and b) the extraordinarily high per-pupil expenditures made by some of the wealthiest suburban districts in the nation, paying two and three times the cost per-pupil per-year as that of an inner city school district (Kozol, 1991).

Let us now look at other data on the issue of money. Card and Krueger (1990) examined whether current income could be predicted from characteristics of the state school systems where men received their education during the first half of the century. After the usual statistical controls were applied, the researchers found that teachers' salaries, class size, and length of the school year, were significant predictors of future earnings. States that had spent the most had produced citizens that had earned the most. Teachers' salaries show up repeatedly in other data as an important factor in improving the quality of the education provided. For example, Manski (1987) found that higher salaries attract teaching candidates with higher academic ability, and Murnane and Olsen (1989) found that teachers' salaries affect the accumulation of experience in the profession. So higher salaries in education, as in most occupations, seem to attract and keep more people of talent. Does that pay off? You bet!

Ferguson (1991), in the Harvard Journal on Legislation, presents convincing data on this issue. Both teachers and students throughout Texas were tested for academic proficiency, providing an unusual set of data for looking at the effects of teacher ability, teacher experience, class size, and professional certification on student performance in reading and mathematics. In this case achievement test data on millions of students in nine-hundred districts were examined longitudinally from 1986 to 1990. In these complex data two rather simple findings emerged. First, teachers' academic proficiency explains twenty to twenty five percent of the variation across districts in the average scores made by students on academic achievement tests. The smarter the teachers, the smarter their pupils appeared to be, when standardized achievement tests were administered to both groups. Second, teachers with more years of experience have students with higher test scores, lower drop-out rates, and higher rates of taking the SAT. Experience counts for about ten percent of the variation in student test scores across districts. The effects are such that an increase of ten percent in the number of teachers with nine or more years experience within a district is predicted to reduce drop-out rates by about four percent and increase the percentage of students taking the SAT by three percent. Dollars appear to be more likely to purchase bright and experienced professionals. In return they are more likely to provide us with higher achieving students. Perhaps the Heritage Foundation might like to reconsider its statement that:

> ...virtually all studies of school performance, in fact, reveal that spending has little bearing on student achievement.... Research demonstrates that [concentrating on performance assessment] will be far more successful than those [reforms] that concentrate on salary levels and class size. (Heritage Foundation, 1989, pp 1-2).

Ferguson also had something to say to the Heritage Foundation about class size. He found that in grades one through seven, each additional student in excess of a class size eighteen causes district academic achievement to fall--and the fall is between ten and twenty percent of a standard deviation per additional pupil over eighteen. Thus, mean performance of a typical fourth grade class of twenty-five students is predicted to be thirty-five percentile ranks below a similar class with only eighteen students. These effects for class-size are larger than ordinarily found, but totally consistent with experimental data recently reported by J. Finn, et al. (1990).

Ferguson also found something to gladden the hearts of teacher educators, namely, that the percentage of teachers with master's degrees accounts for five percent of the variation in student scores across districts in grades one through seven. So we learn from Ferguson and from other supporting data that academically more proficient teachers, who are more experienced, who are better educated, and who work with smaller classes, are associated with students who demonstrate significantly higher school achievement. It costs money to attract academically talented teachers, keep them on

the job, update their professional skills, and provide them with working conditions that enable them to perform well. Those districts that are willing and able to pay the costs attract the more talented teachers from neighboring districts, and they eventually get the best in a region (see Kozol, 1991). This is called a market, and when it exists, as when some districts spend more on instructional variables, those districts can improve their academic performance. Their improvement, however, must be at the expense of the districts unable to pay the price. This strikes me as an inherently undemocratic system.

It is important to ask, when someone says money does not matter, whether the money we are talking about is for instructional purposes, such as teachers' salaries, class size, professional growth, and so forth, or whether it is for other purposes. The per-pupil expenditures for busing in rural areas, for building new facilities, for athletic programs and for other non-instructional costs, should not be expected to have direct effects on student achievement. But the money school districts spend on instructional variables, including the teachers' salaries, matters a great deal. Whoever says money does not matter has simply not disaggregated the data.

Charge: American schools are too expensive. We spend more on education than any other country in the world, and we have little to show for it.

There is no shortage of citizens and politicians who will say this, despite the ease with which it can be shown to be false. Rasell and Mishel (1990) inform us that President Bush has received advice from the chair of the Council of Economic Advisors, Michael Boskin, who said we spend more per pupil than most of the other industrialized economies. Former Secretary of Education Cavazos and current Secretary of Education Alexander said we spend more than our rivals Germany and Japan. The ever-advising Chester Finn wrote in the New York Times that we "spend more per pupil than any other nation." And John Sununu, formerly the President's chief of staff and close advisor, just before the educational summit meeting of 1989 declared that "We spend twice as much [on education] as the Japanese and almost 40 percent more than all the other major industrialized countries of the world." The Economic Policy Institute of Washington (Rasell and Mishel, 1990) checked the veracity of these statements. It appears that the people who make these claims, like David Stockman before them, made up the numbers as they went along. Their only concern is the advancement of their own political agenda, which may well be the destruction of the public school system through disinformation.

The United States of America, according to UNESCO data, is tied with Canada and the Netherlands, and all three fall behind Sweden in the amount spent per pupil for education in K-12 and higher education (Rasell & Mishel, 1990). Even though we are not first, we look good in this comparison because we spend much more than most nations on higher education, and have two to three times more people

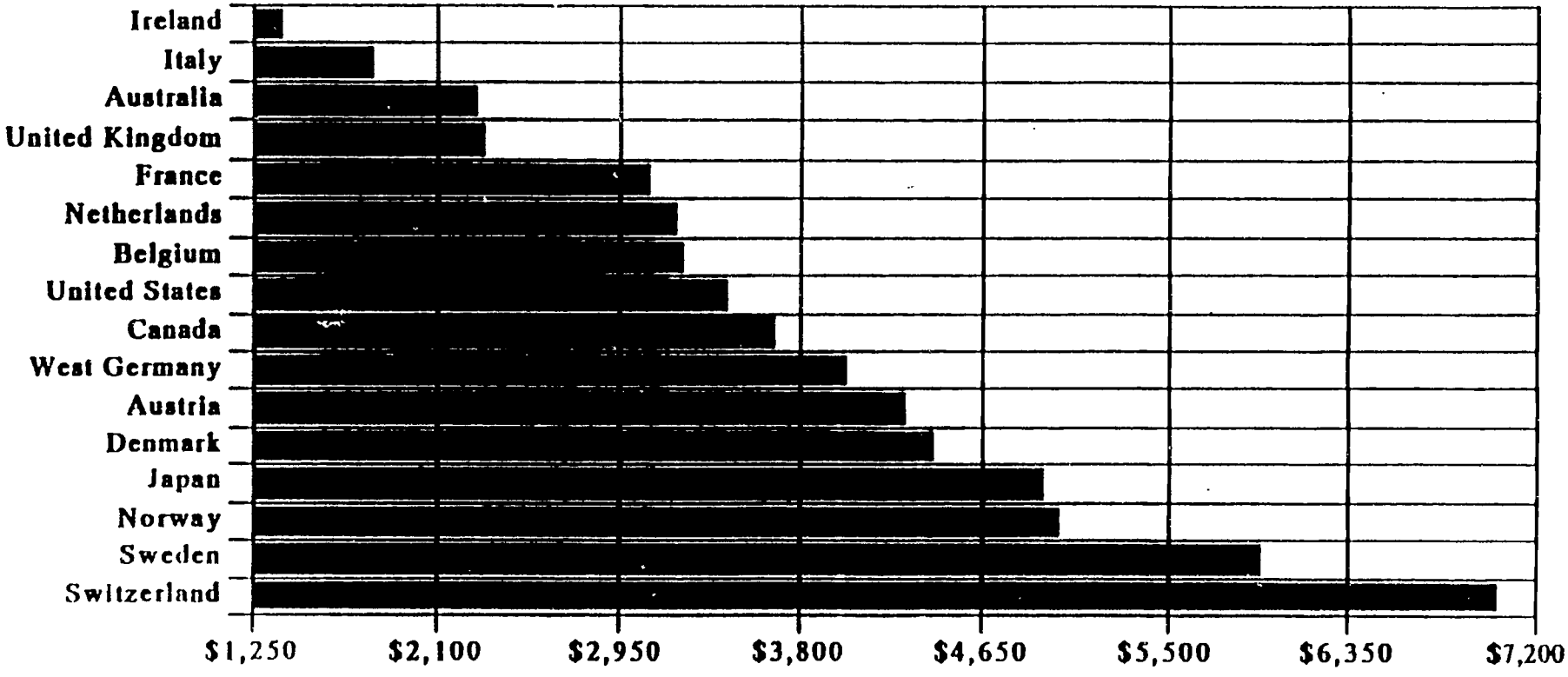
per 100,000 population enrolled in higher education than most other countries. When it comes only to pre-primary, primary and secondary education, however, we actually spend much less than the average industrialized nation. We spend dramatically less!

OVERHEAD 10

In 1988 dollars we rank ninth among sixteen industrialized nations in per-pupil expenditures in grades K-12, spending fourteen percent less than Germany, thirty percent less than Japan, and fifty-one percent less than Switzerland. We can also compare ourselves to other countries in terms of the percent of per capita income spent on education.

OVERHEAD 11

When we do that comparison we find that out of sixteen industrialized nations, thirteen of them spent a greater percent of per-capita income on K-12 education than we do. If we were to come up to the average percentage of per capita income of the fifteen other industrialized nations, just to the average percentage expended per capita in those countries, not to the levels of those countries that spend the most, we would have to invest an additional $20 billion per year in K-12 education! Mr. Sununu, Professor Finn, and the two Secretaries of Education must know this. Is it possible that they are conducting a disinformation campaign?



16 Industrialized Nations - (UNESCO and NCES Data, Page 15, Rasell and Mishel, 1990)

OVERHEAD 10

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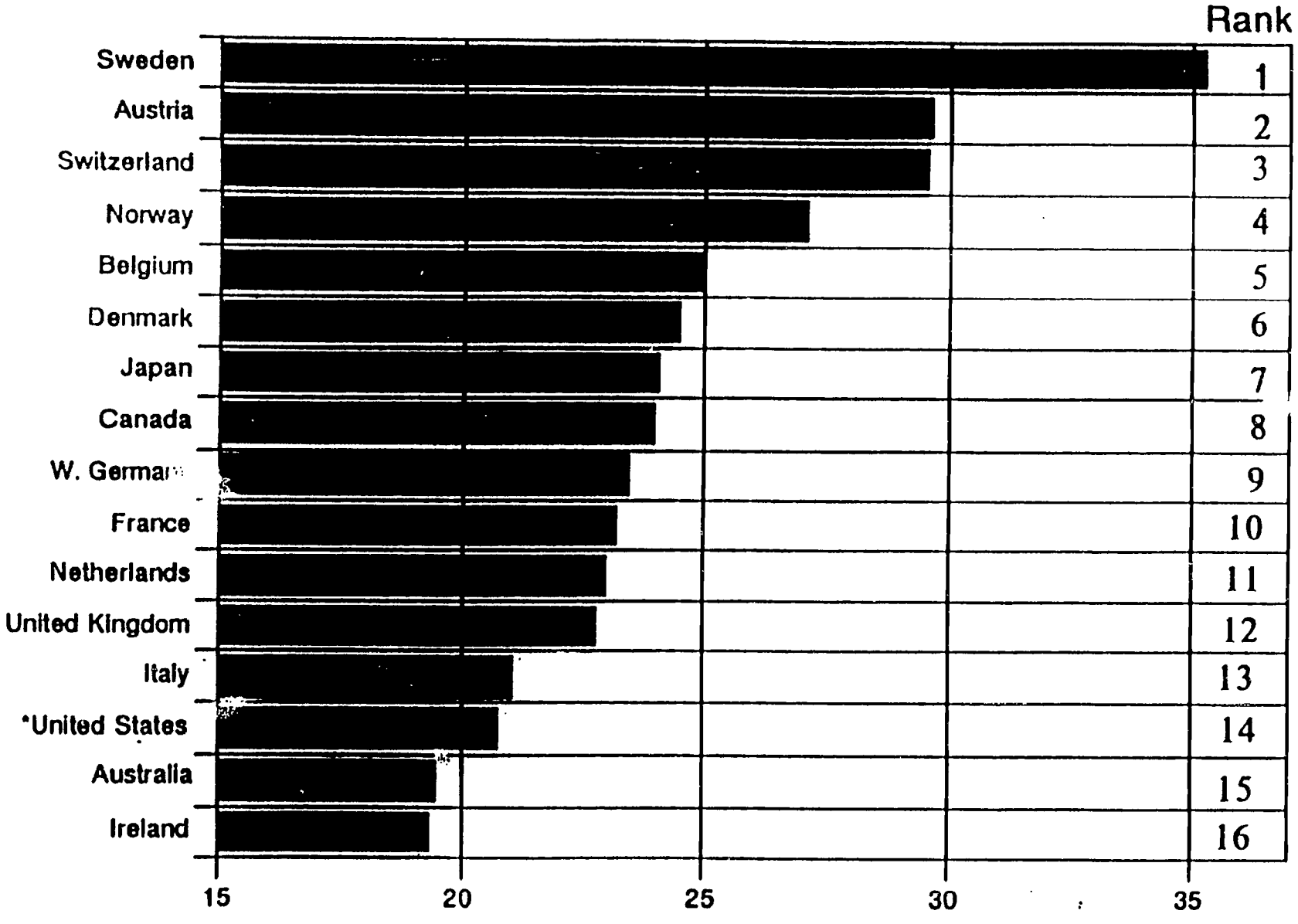


Expenditures for K-12 education as a percent of per capita income (1985)

OVERHEAD 11

Perhaps we do not teach as much in the lower grades as some would like. But we do not have to. We can provide the needed learning for a relatively large percentage of our students during their post-secondary studies. Our nation has chosen to invest its money into higher education. Consequently, our educational system provides about twenty-five percent of a cohort with college degrees, and it is the envy of the world. We run a costly and terrific K-16 school system, but we must acknowledge that we run an impoverished and relatively less well achieving K-12 system of education. Moreover, in many of the countries that spend more per capita than we do, the funding is relatively even across regions and cities. But in our nation we have, as Jonathan Kozol vividly describes, Savage Inequalities (1991) in our funding for schools. Even though the average expenditures in the primary and secondary schools are low for the nation as a whole, the actual annual expenditures for some of our students in school districts at the bottom of the distribution from which we calculated the mean are actually much, much lower. To our shame, conditions in many of our school districts resemble those in the non-industrialized nations of the world.

Given the expenditures on K-12 education, I can only conclude that our education president, George Bush, was not telling the truth when his lips were read and he was quoted as saying at the education summit of 1989 that the United States "lavishes unsurpassed resources on [our children's] schooling" (Bush, 1989). Actually, he should have said we are among the most cost-efficient nations in the world, with an amazingly high level of productivity for

the comparatively low level of investment that our society makes in K-12 education.

Charge: Our high schools, colleges and universities are not supplying us with enough mathematicians and scientists to maintain our competitiveness in world markets.

Once again the Sandia National Laboratories have compiled data suggesting this is not so (Carson, Heulskamp, and Woodall, 1991). Data from the National Science Foundation provide the percent of natural science and engineering bachelor's degrees awarded from the 1960s to the 1990s.

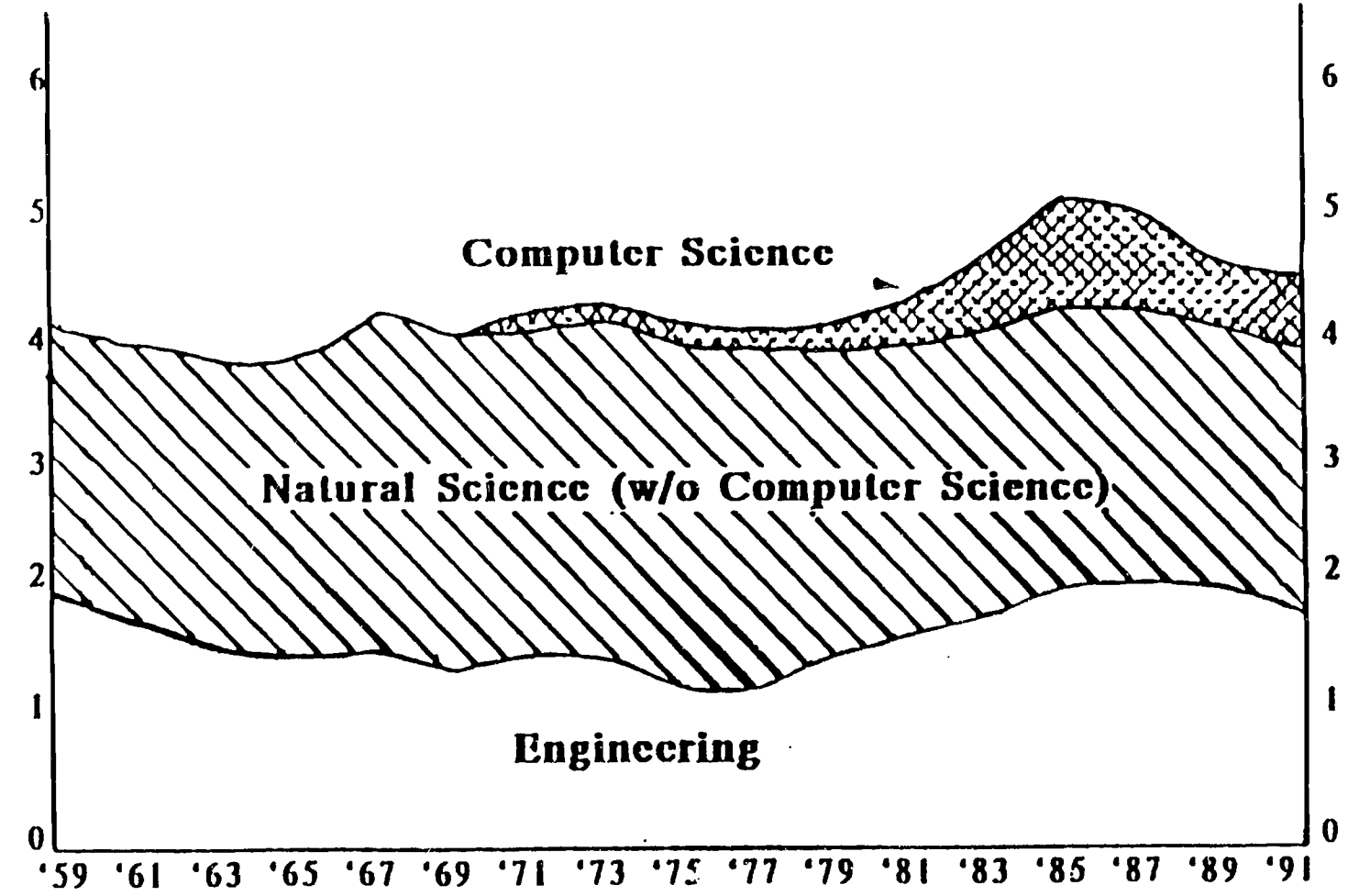
OVERHEAD 12

As can be seen, data on the percent of twenty-two-year-olds receiving science and engineering degrees are remarkably steady over time. Moreover, while the actual numbers continue to be small, we have improved the percentages of minorities and women who now have access to technical jobs, as revealed in the next overhead.

OVERHEAD 13

Educators should take enormous pride in the trends revealed in these data. We hope that these trends will not be reversed by the substantial reductions in support of higher education for poor and

NATURAL SCIENCE & ENGINEERING BACHELORS DEGREE RATE (Degrees per 22-yr-old U.S. population



Adopted from Carson, Huelskamp and Woodall, 1991, p. 61, Original Data from the National Science Foundation.

OVERHEAD 12

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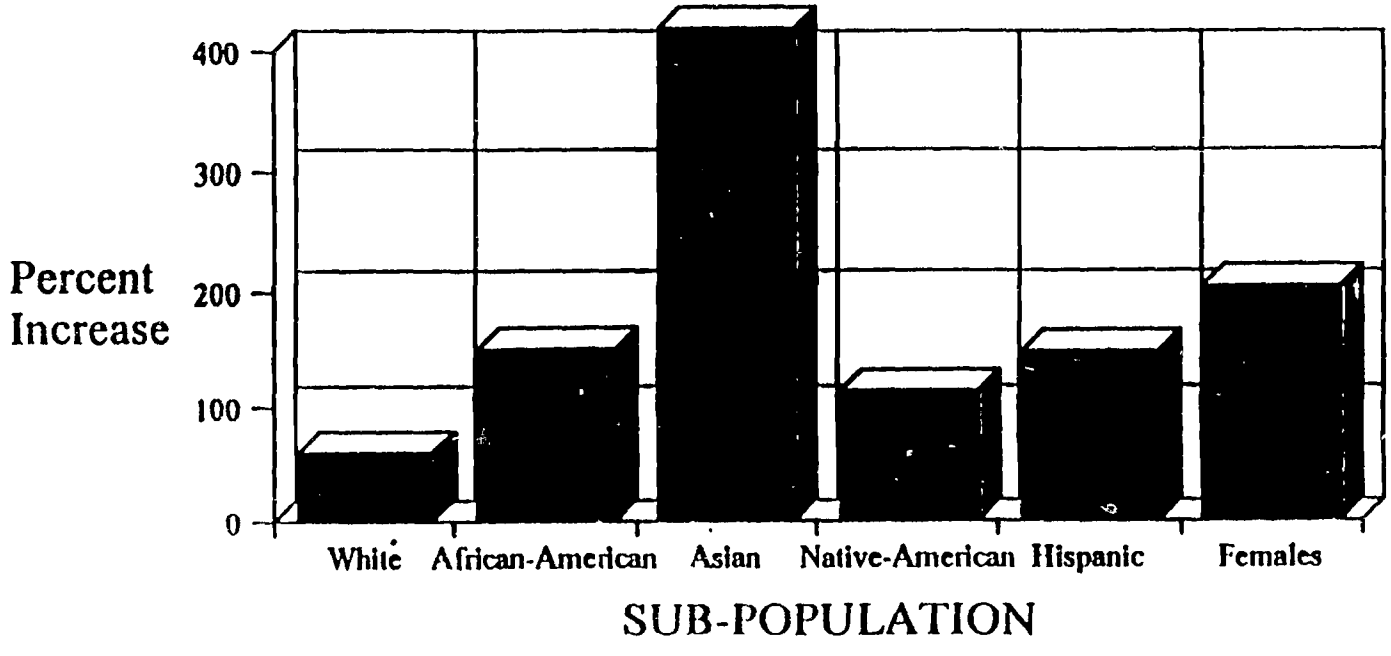


Increase in Mathematics, Computer Science, Physical Science and Engineering Bachelors Degrees for Selected Subpopulations, From 1976 or 1977 to 1986 or 1987. (National Science Foundation Data, Adapted from Carson, Huelskamp & Woodall, 1991, p. 63)

minority students at a time when the costs for post-secondary education are increasing.

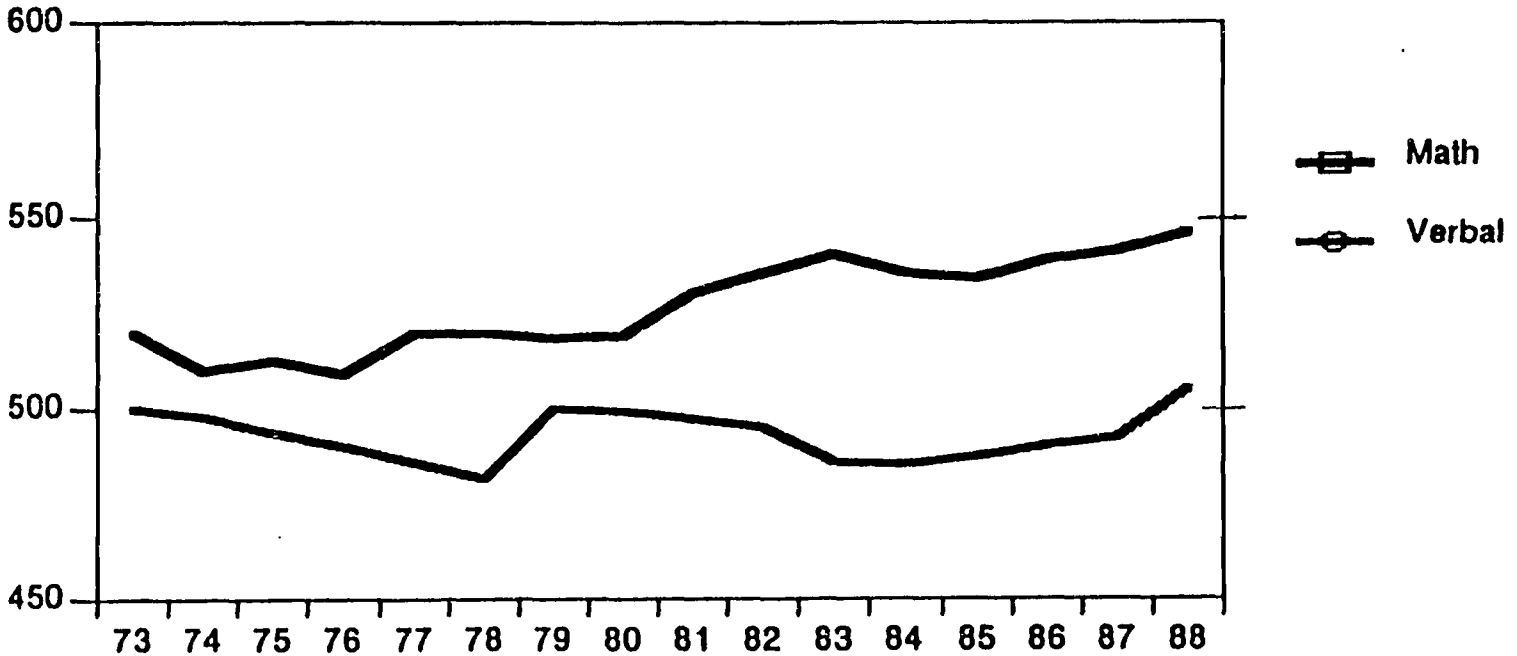
What is also worth noting about this supposedly failing system of ours is that when our students finish their baccalaureate, they know as much as they ever did, at least as measured by the Graduate Record Examination (GRE), the test taken by most of those contemplating post-graduate education.

OVERHEAD 14

In fact, as revealed in these data, the 1980s saw college graduates in possession of higher mathematics skills than they ever had before. Furthermore, just since 1982 the measure of analytical and logical reasoning on the GRE, assessing what we normally call thinking, has increased about a third of a standard deviation. And it has gone up while the number of examinees taking the test has increased sixteen percent (Educational Testing Service, 1991). So the validity of the charge that undergraduate education is failing like every other part of the educational system is as questionable as the other laments we hear throughout the land.

Although we see that the supply of mathematicians and scientists is steady, and that they are probably as talented as ever, we still have not addressed the charge that the supply in these fields is not keeping up with the demand. In fact, there is solid data to suggest that the supply is exceeding demand! First of all we now

Graduate Record Exam scores for U. S. citizens



(From Carson, Huelskamp and Woodall, 1991, p. 67. Original data from the National Center for Educational Statistics

OVERHEAD 14

exceed or are at parity with our economic competitors in terms of the technical competence of our work force, for example, in the number of engineers and physical scientists in the work force per hundred workers (Carson, Huelskamp, and Woodall, 1991, p. 107). So if we have lost our economic edge in the world market place it may well be because of poor business management and faulty government economic policies, but it certainly is not due to the lack of a technically skilled workforce. But that is the present. The future supply in these fields does look gloomy, but that is true only as long as the economy's demand for such individuals is not examined. When demand as well as supply is examined, it turns out that the economy is not now able to absorb all the scientists and engineers that we produce. The Sandia report estimates that even with no increase in the rate of supply of scientists and engineers we will accumulate a surplus of about one million by the year 2010. Given the reduction in military spending we are likely to see over the next few years, the glut of trained scientists is likely to be even higher than the forecasts that were made a year or two ago. In my gloomiest moments I think the business community and politicians who demand even higher production of engineers and scientists from the schools do so because the cost of labor for these individuals is higher than for others in the market. An oversupply will certainly drive down the salaries of such workers.

It is also interesting to note that while the business community is arguing for greater production of engineers and scientists by the schools, it is at the same time informing us that it really has enough

adequately prepared technically skilled people. Examining two different contemporary surveys of the five most important and five least important skills needed by employers, the Sandia scientists uncovered data in complete accordance with other studies conducted throughout this century.

OVERHEAD 15

As revealed in this overhead, and in dozens of other studies, it is the affective and motivational characteristics of workers that our employers worry most about. They depend on employees to show up on time, to get along with others, to care about doing well on the job, and so forth. They do not find the technical ability of the work force to be a problem for them.

The myth of the coming shortage of technically able workers has also been debunked by the Economic Policy Institute (Mishel and Teixeira, 1991). They conclude from their analysis of the present and future labor force that

> The projected shift in the occupational employment mix necessitates a small shift in educational requirements that can be accomplished if those entering the labor force have, on average, one-fourth of a grade level more education than those retiring from the labor force (p. 13).

Five *Most* Important Skills for Employment

Michigan Survey	Rochester, NY Survey
No Substance Abuse	No Substance Abuse
Honest, Integrity	Follow Directions
Follow Directions	Read Instructions
Respect Others	Follow Safety Rules
Punctuality, Attendance	Respect Others

Five *Least* Important Skills for Employment

Michigan Survey	Rochester, NY Survey
Mathematics	Natural Sciences
Social Sciences	Calculus
Natural Sciences	Computers
Computer Programming	Art
Foreign Language	Foreign Languages

Survey of Workforce Skill Requirements Conducted by Michigan Education Department and the Rochester New York School District (Adapted from Carson-Huelskamp and Woodall, 1991, p. 131)

How can this be? Do we merely require only one-quarter of a grade level more education? These researchers explain that the five most highly skilled and growing occupational groups will only make up about six percent of the the job pool by the year 2000. On the other hand, service jobs, requiring the least technical skill, will actually grow the fastest overall in the next few years, and they will constitute about seventeen percent of the job pool by the year 2000. Apparently this nation is not in any danger of failing to meet its technological needs.

An explanation for the level of national proficiency we achieve as a nation in technical and scientific fields is offered by labor economist John Bishop, writing in the scholarly journal Curriculum Studies (1990). He asked whether evidence from the labor market supports the claims of critics of schooling that there are economic benefits associated with better preparation in science, mathematics and language arts. Studying longitudinal data sets he found that during the first eight years on the job, young men without college education receive no rewards from the labor market for their ability in science, mathematical reasoning or language arts. For the non-college bound female there was some effect on wages for mathematical reasoning, but none for competence in science or language arts. Bishop's conclusions explain a good deal of American student behavior for me when he says:

> The tendency of so many American high school students to avoid rigorous mathematics and science courses and their poor

performance on international science and mathematics tests. may, therefore, well be a rational response to the lack of labour market rewards (p.123).

Although personal rewards cannot be found for high levels of school achievement in these areas, Bishop does note that increased economic productivity is associated with increased mathematical and technical knowledge. So we have reason to want our students to be mathematically and scientifically literate. But that is a more reasonable goal than the one the President and the press have adopted unthinkingly, being the number one nation in science and mathematics. It is my fervent hope that we do not try to become the number one achieving nation in science and mathematics because a) we value a different set of childhood experiences; b) we simply do not reward such skills; c) we have enough people with those skills now; d) we will have an oversupply of people with those skills soon enough; and e) we have a world wide pool of technically competent Pakistanis, Indians, Asians and Latin Americans from which to draw if we ever need to. That is, of course, if we can get over our xenophobia and racism.

Another finding from the work of the Sandia National Laboratories provides a response to those who grumble that so many of our graduate degrees in mathematics and the natural sciences go to so many foreign-born students. It turns out that we are blessed with the good luck that over half of these talented individuals choose to stay in our country. These individuals become relatively high

earning law-abiding citizens, though no matter how much some people might wish it, they will never look white.

Like most Americans I want a nation that is technologically literate, a citizenry that knows enough mathematics and science to evaluate the solutions to the complicated problems that are produced in a technologically sophisticated world. Basic technological literacy is a reasonable curricular goal for our nation. Bashing other countries in the international educational competitions is a political agenda--not an educational one.

Charge: The United States is an enormous failure in the international comparisons of educational achievement.

This charge gets the citizens of our nation riled. National pride, as at the Olympics, is involved. But if we are to have a competition then let us ask only that it is fair. I would ask five questions about such comparisons before I would spend one moment worrying about our students' performance. First, I would like to know if we Americans want for our children a childhood like that experienced by Japanese, Korean, Israeli or Indian children? I do not think so. Their children are raised in their ways and our children are raised in our way. As you might expect, we have a vision of what constitutes a "normal" childhood that is uniquely American. My middle-class neighbors seem to agree that their children should be able to watch a good deal of TV; participate in organized sports such as Little League, basketball, and soccer; engage in after school activities such as piano

lessons and dance; spend weekends predominantly in leisure activities; work after school when they become teenagers; have their own car and begin to date while in high-school; and so forth. To accomplish all this, of course, children cannot be burdened by excessive amounts of homework. This kind of American consensus about childhood is one designed to produce uniquely American youth--some of the most creative and spontaneous children the world has ever seen, who are not afraid to challenge adults and their authority, at least in comparison to the youth of many other nations. And these students do go on to more challenging schooling at the college level, in numbers that are the envy of the world.

It is clear that our system is not designed to produce masses of academically highly achieving students before the college years. You cannot have both high levels of history, language, mathematics and science achievement for great numbers of students and the conception of childhood that I have just sketched. We have proved, however, that this system can produce sufficiently high numbers of students for the nation's needs. That is really all that is needed. Our nation is certainly not at risk because of the conceptions of childhood that we hold.

Second, I would ask of such international comparisons that they inform me whether the groups being compared have spent the same amount of time practicing the skills that are to be assessed. Suppose I ran a simple training study, using two groups to assess their ability to fix computers. Now suppose one of those groups had

two years more practice in fixing computers than the other one did. Would it surprise anyone if the group that practiced for an additional two years appeared markedly better at fixing computers? Of course not. Yet this is exactly what we do when we compare American and Japanese students of the same age. Given the additional sixty school days in the Japanese school year, across ten years of schooling, we find by the simplest arithmetic that the typical Japanese student, in comparison to the typical American student, has the equivalent of over three extra years of schooling when they are both, say, sixteen years old. Moreover, given the additional time in private "after-school" schools and in Saturday school (the juku schools, attended by a large percent of the Japanese school-age population), we note still greater amounts of education accumulated by the Japanese children of the same age as their American counterparts. Furthermore, given the immense amount of homework assigned and completed, immense at least by American standards, we note that the average Japanese student of the same age as an American student has accumulated huge amounts of extra time practicing school subjects at home and on weekends. Suppose you now compare these groups in terms of their mathematics and science achievement in the tenth grade. It would be really newsworthy if the results were any different then they are now. The results we get are exactly what one should expect. They are as predictable as is criticism of our public system of education by our leaders.

Third, I would want to make sure that the samples of students that take the test are somehow equivalent. It is easy for the United

States to produce a representative sample of 13- or 16-year olds for an international comparison. Is that also true of some of our international competitors? Some of the nations in these studies have neither an accurate census nor a school system that attempts to keep everyone in school. We have a larger percentage of our school-age population in school than most other nations. Thus our representative sample is culturally and economically more heterogeneous. (See the insightful review of this issue by Rotberg, 1990). In the first international assessments of educational achievement (IEA), from which we learned how awful the United States was doing, the average performance of seventy-five percent of the cohort in the United States was compared with the average scores of the top nine percent of the students in West Germany, the top thirteen percent in the Netherlands, and the top forty-five percent in Sweden (Rotberg, 1990). Could the results be predicted? In the most recent international comparisons of science and mathematics achievement (Lapointe, Askew, & Mead, 1992; Lapointe, Mead & Askew, 1992), the United States did not do as well as Korea and Taiwan. But I noticed in the appendix of the reports that we had more children than they did with fewer years of formal schooling. All other things being equal, when around ten percent of our sample has a year or two years less schooling than the sample of the same age from Korea and Taiwan, you have a sampling problem. What could be newsworthy about differences in achievement when the samples are not equivalent?

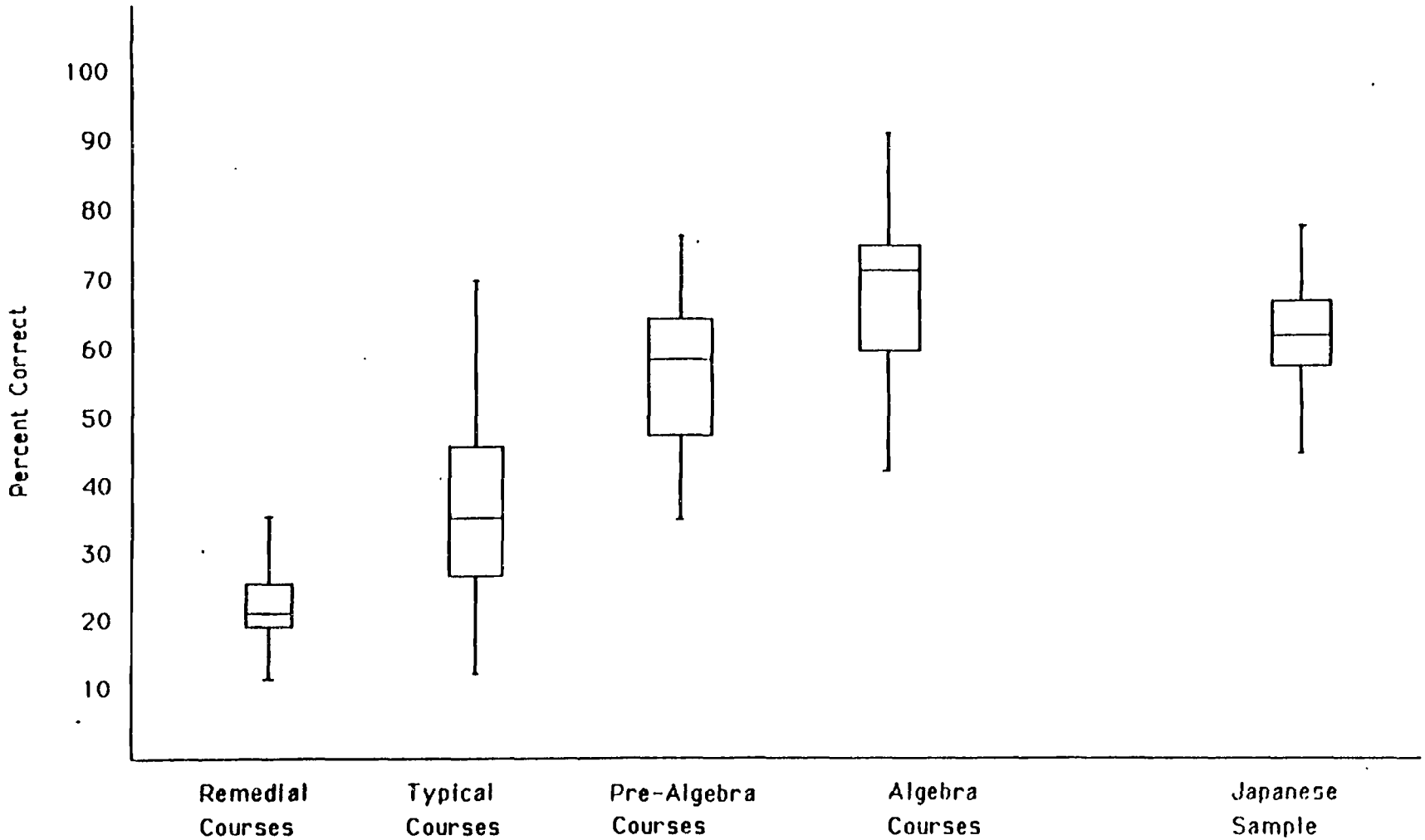
Fourth, I would like to be sure that the opportunity to learn was the same for the different groups in the international comparisons. We should note that school systems that do not hold as many children as we do until high school graduation, and who have fewer students continuing through to higher education, need to teach many things at an earlier point in the curriculum. Calculus and probability are examples of that in the area of mathematics. Because we are a nation that is rich enough and democratic enough to attempt to retain our youngsters longer in school, and because we send a comparatively large number of them on to college, we often look poorly in the international comparisons. Many of our students learn what they need to learn later than in other countries.

We need to remember that students will not do well on any content they have not been exposed to. Opportunity to learn a subject is probably the single best predictor of achievement that we have. If you cannot control for it, you have no basis for comparing achievement. Westbury (in press) has data on this issue. He looked at the findings of the Second International Mathematics Study, where our performance appeared to be so bad that Congress and the press vilified the educational establishment for weeks. Westbury asked whether we see in the performance of the Japanese and others, evidence of efficiency and effectiveness in education, or merely evidence that national curricula differ. He looked at the algebra performance of eighth graders and saw that the 273 United States classes in the sample were labelled as remedial, typical, pre-algebra, and algebra classes. To no great surprise, only the pre-algebra and

the algebra classes in the sample had nearly the same amount of exposure as the Japanese classes in the sample to the algebra items that made up the test. These classes constituted only about twenty-five percent of the United States sample of classes. Three quarters of the classes in the United States sample were simply not exposed to the same curriculum as were the Japanese. Can you guess what the result might be in such a comparison? Westbury disaggregated the data, something not done by the press or the politicians. These data are shown in the next overhead:

Overhead 16

Now we see that American students in the pre-algebra and the real algebra classes perform as well or better than do the Japanese students. But as a whole, of course, we do not and cannot perform as well as they do, given the curriculum decisions we make, including the tracking systems we use in seeking to accommodate a heterogeneous population. There is a flaw in this comparison, however, because the American students represented the top twenty percent of the national sample in mathematical ability. It is not fair to compare them against an undifferentiated Japanese sample. Recognizing that, Westbury went on to compare the Americans in the pre-algebra and the algebra classes with the top twenty percent of the Japanese sample. The next overhead shows that comparison:



OVERHEAD 16

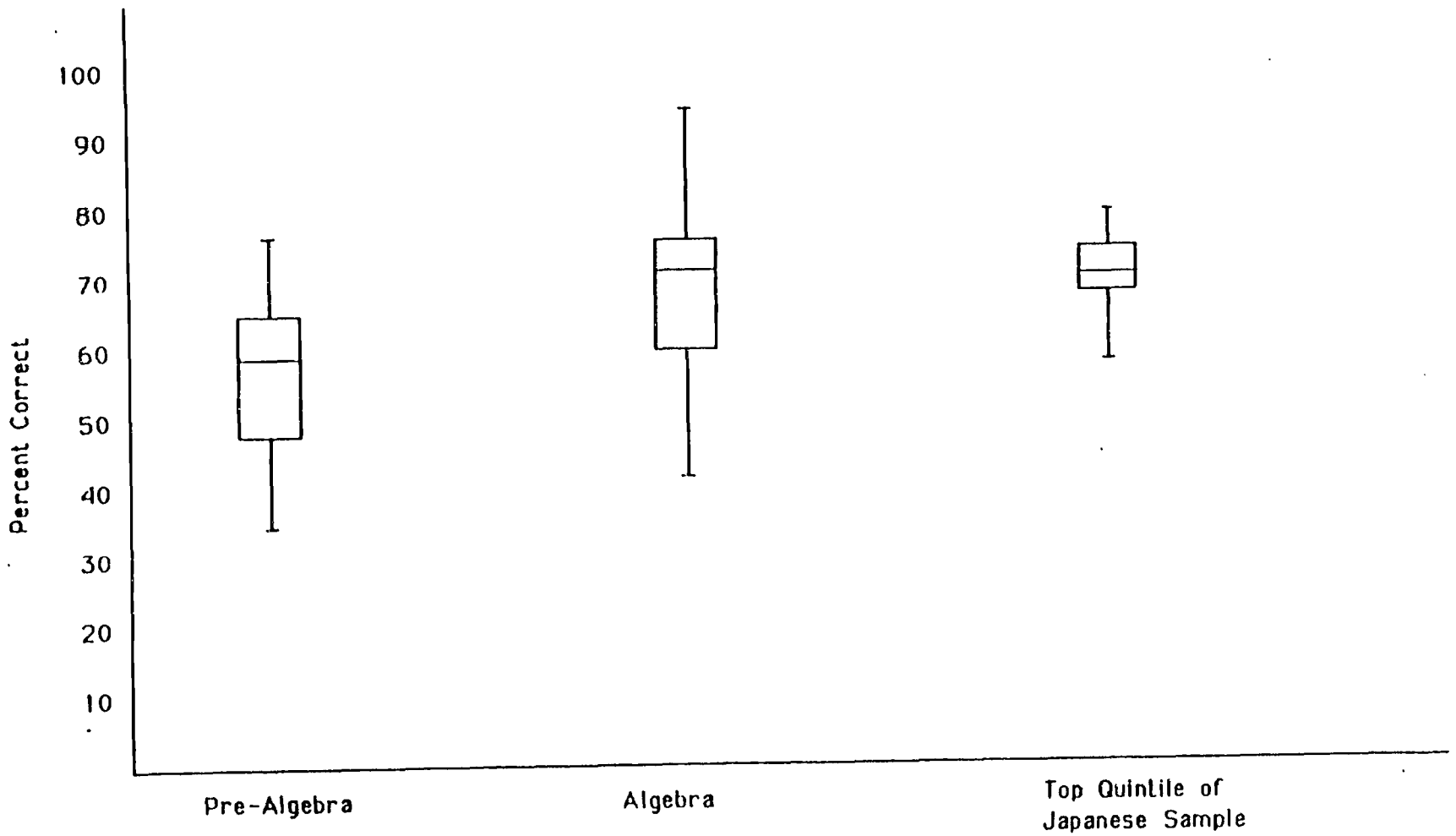
Box-Plots Displaying American and Japenese Mathematics Achievement,

Second International Study of Mathematics (Westbury, in press)

Overhead 17

The results are about the same for the genuine algebra class. American students with the same opportunity to learn in the schools perform as well as the Japanese. Maybe better! The differences in achievement between nations are most parsimoniously explained as differences in national curricula, rather than as differences in the efficiency or effectiveness of a particular national system of education. International comparisons such as these make us realize that American students, including the most ordinary ones, are capable of learning more mathematics at earlier ages, if that is what we want them to learn. The comparisons also remind us that tracking by ability might be a bad policy for the nation. But while we should wrestle with those legitimate curriculum issues, we need not blame our students and castigate their teachers for gross failure. Our nation, particularly at state and local levels, has made curricula decisions that are in accord with prevailing views of childhood and of education. We can change those if we want. But the system has actually been serving the nation well for decades, and as noted, it is producing all the mathematicians and scientists this economy can use for the foreseeable future.

Finally, in considering the results of international comparisons, I would like to be assured that the motivation of the students who took the tests was similar across different nations. The Quality



Box-Plots Displaying American Pre-Algebra and Algebra Achievement and the Achievement of the Top Quintile of the Japanese Sample (Westbury, in press)

Control Observer for the recent international comparisons (Lapointe, Askew & Mead, 1992, p. 24) reports on the high achieving Koreans.

> The math teacher...calls the names of the 13-year olds in the room who have been selected as part of the IAEP sample. As each name is called, the student stands at attention at his or her desk until the list is complete. Then, to the supportive and encouraging applause of their colleagues, the chosen ones leave to [take the assessment].

As Bracey (1991) noted, these students are taking the test for the honor of their country. In the United States our students know that neither they, nor their parents, nor their teacher, will ever see the scores they make. It is not an honor to take the test, but an inconvenience. I can hear some of the kids I know saying: "You should have seen the diagrams I drew on my answer sheet, man, they were great, until I fell asleep!"

I cannot find much to worry about in the international comparisons. Every nation has a vision of childhood, of development, schooling, equality, and success. While our nation heatedly debates these visions, as it should, and we modify our visions, as a dynamic society must, let us just note that the system we created has been remarkably successful for a large number of the children and parents we serve.

The Children and Parents Served by the Public Schools

It was not difficult for me to find respectable data suggesting that the basic premises underlying contemporary thinking about school reform in the nation are faulty. It is not that the data I have presented is "true," while the arguments of others are "false." And it is not that I am a defender of the status quo, for I am not. It is simply that there are numerous lines of evidence suggesting that the American public school system is not a failure.

We have seen that the charge suggesting that contemporary youth are not as smart as they used to be is debatable. They may, in fact, be smarter than they have ever been, at least as measured by the most well-respected intelligence tests that we have, and by student performance in advanced placement courses and on the GRE. Schooling seems to have made these achievements possible. On standardized tests, whether we use the SATs, the NAEP examinations, the Iowa Tests of Basic Skills, the California Achievement Test, the specially designed social studies tests of Drs. Ravitch and Finn, or numerous other standardized tests, we can find evidence for increased achievement over time, or evidence for maintenance of achievement, than we can for a decline in achievement. Educators should be given presidential citations for this accomplishment, since their success took place during the time period when the problems of the young people served by the public schools have become more difficult for the schools to solve.

The National Commission on Children (1991), chaired by Senator Rockefeller, makes this abundantly clear. For example, in 1970 12 percent of our youth lived in one parent households. By 1989 that rate had more than doubled, to 25 percent. Over 17 million children under the age of thirteen have mothers working outside the home. Over eight million children under the age of 18 currently have no health coverage. Since 1980 no progress has been made in reducing the rate of low birth-weight babies, and for African-American babies that rate has actually risen. Public school teachers must nurture children whose families are poor, ill, and stressed. And the longer they remain in that state, the less hope those children have of it ever being different. According to federal definitions, about 13 million youngsters live in poverty, two million more than just a decade ago. Five million of those children live in families with incomes half the amount the government sets as the poverty level. From 1976 to 1989 educators have been dealing with the emotional lives of children whose age group has seen a 259 percent increase in child abuse and neglect. In the early 1980s we had 275 thousand youngsters in foster homes, by 1995 we will have 550 thousand in foster homes. The government informs us that our nation has up to 100,000 children under 16 who are actually homeless every night, and as many as one million adolescents each year who are throwaways or runaways, living on the streets, in cars or with friends (Foscarinis, 1991). Regardless of the nature or the severity of the problem, it is the public educational system that is called on to work with these children.

Educators worked with teenagers that, as a group, were 100 percent more likely to be murdered in 1989 than they were in 1965. Educators work today with African-American teenagers that are more likely to die of gunshot wounds than from all natural causes of death combined. From the 1960s to the 1970s, mostly among white adolescents, educators saw the suicide rate double, and then rise another 30 percent by the 1980s. While our black youth are getting shot at record levels, our white youth are killing themselves off at record levels. During this time period the public schools of our nation seem to have maintained or increased their productivity. I wish industry were nearly as productive, adaptive and cost efficient. For we learned that the nation does not spend nearly enough on pre-primary, primary and secondary education as it professes to, and we learned also that money spent for instructional purposes has direct effects on student achievement. This high achieving, productive, comparatively cheap system of education is producing all the technically able workers we need, and it has done so for years. Our work force, though not our business leaders, seem to be among the most skilled in the world. And in the international comparisons of school achievement we have learned the remarkable fact that school children learn what schools choose to teach them, and that, conversely, they do not learn what schools do not teach. National systems of education have schools and curricula that reflect their visions of childhood and achievement. Comparative assessments, if they are any good, will show those national differences more clearly. On the other hand, we learn absolutely nothing that is not simple to

predict when there is inadequate sampling, lack of control over the the time spent preparing for the assessment, differences in opportunity to learn, and differences in motivation.

This American system of ours has performed so well that the majority of parents with students in public schools have been very satisfied with the teachers their children have. Local parents throughout the nation have been saying to the poll takers for fifty years that their local schools are pretty darn good. In one recent example of this (Elam, 1990) a nationally representative group of parents were asked how they rated the school attended by their oldest child. A startling 72 percent of the parents awarded that school the grade of A or B. Only two percent of the parents who have the greatest contact with the public schools thought the school their child attended deserved a grade of F. These data are relatively unchanged since the end of World War Two. Reform proposals before us recommending choice in schooling are based on a belief that the customer is dissatisfied with the schools and that the schools are failing to do their job. I can find no evidence that either is true when we look at the nation as a whole. Why then would so much be made of choice? Perhaps some people have noted that the public expenditures for education are large and it would be nice to get that budget into the private sector. Then education could be treated as a privilege, not a right, and it would ensure that children of wealthier segments of our population will inherit their positions. This is frightening.

I find it ironic that Total Quality Management (TQM), suggested by business leaders as a cure for supposedly ailing schools, requires constant assessment of customer satisfaction. We educators have done that and been found terrific by the parents who have children in the schools, our customers. Those who see the schools as a failure usually do not have children in the public schools. For example, the ever-critical Dr. Finn, whose daughter attended Exeter (Kozol, 1991), says that the ordinary parents of the nation are not to be trusted with their opinions. They haven't got rigorous enough standards to make these kinds of judgements about the schools (C. Finn, 1991). People who find the general public unable to make intelligent judgments scare me. They are often part of a self-proclaimed elite that, for the good of the nation, will be pleased to tell each of us what we are to believe and how we are to act. I would much rather put my faith in the common people of the country, as messy as that can sometimes be.

The Critics

At least some of the criticism of the schools comes from an elite that is against public schooling. They need to be fought as they have had to be fought from the beginning of the crusade for public schooling (Cremin, 1989). There have always been those who never could believe in the intelligence of the common person, or they never wanted to share the advantages

of education with common people. The late, wise historian of education, Lawrence Cremin, has remarked on this issue:

> ....social groups possessing a relatively rare and highly valued commodity that establishes their superiority over other social groups are reluctant to see that commodity more widely distributed. Wide distribution becomes tantamount to devaluation...(Cremin, 1989, p. 11)

Some of the criticism of education, however, is simple scapegoating. It is no longer fashionable in most social settings, and in the mainstream press, to blame the great economic and social tragedies of contemporary American life on the international Jewish conspiracy, or on the lack of motivation or talent of African-American, Polish-American or Mexican-American workers. The greedy union bosses and the welfare queens cannot be blamed anymore since we no longer have strong unions, and the amounts spent on welfare are small potatoes compared to the amounts we used to bail out the savings and loan companies. Their robbery of the American people was perpetrated by nice, middle-class, well-educated, religious white men from two-parent households, the kind of Americans who wouldn't possibly want to hurt their nation. But blame for society's ills, of which there seem so many, needs to be assigned somewhere. And there was one ordinarily passive, relatively defenseless group available. From 1983 on this

nation has been told relentlessly by its leaders that we are a nation at risk because our schools and our teachers have failed us. But the truth, I think, is that those leaders have failed the schools and the teachers of America. Rather than lead us to ruin, the vast majority of teachers have run a system that is remarkably good for the relatively advantaged children of America. The teachers in the schools with the least support, serving children who need the most help, are indeed, having a harder time. Those schools may be failing, but the causes for that are usually outside the school building. Those causes are embedded in the social inequities prevalent in our society.

It is easy to use the schools as a scapegoat. It has been a traditional American pastime. For example, in 1909 the Atlantic Monthly criticized the schools for a) not teaching enough knowledge, b) not teaching thinking skills, and c) not preparing young people for jobs. These laments are still current ninety years later and seem to have been current since public schooling began in the United States of America. The Ladies Home Journal of 1912 has always been my favorite. There Ella Francis Lynch criticized the schools because life in America had changed and the schools had not changed with them, another old criticism of persistent currency. That year the Journal also pointed out to their readers that the tests and the grades given in schools were ruining our nation, another contemporary theme. Lynch, however, had a way with words that was

wonderful. She questioned if the millions of middle-class women who were her audience could

> ...imagine a more grossly stupid, a more genuinely asinine system tenaciously persisted in to the fearful detriment of over seventeen million children and at a cost to you of over four-hundred and three million dollars each year--a system that not only is absolutely ineffective in its results, but also actually harmful in that it throws every year ninety-three out of every one hundred children into the world of action absolutely unfitted for even the simplest tasks of life? Can you wonder that we have so many inefficient men and women; that in so many families there are so many failures; that our boys and girls can make so little money that in the one case they are driven into the saloons from discouragement, and in the other into the brothels to save themselves from starvation? Yet that is exactly what the public-school system is today doing. and has been doing.

But let us jump ahead to the 1946 Ladies Home Journal, where it was reported that teachers were inadequately trained to meet the needs of the baby boomers; where poor pay was rampant; where there were discrepancies in schooling based upon geography, income and class; where there were no standards anymore; and where indifference to the schools by

parents was rampant (this discussion is adapted from Kent, 1987). Time magazine in 1949 charged that the schools were failing to teach traditional subject matter because it was too concerned with life adjustment education. The year 1951 seemed a particularly good year for criticism (Kent, 1987), though most people think of that time period as among those halcyon days of yore. From Readers Digest and the Scientific Monthly we learn that

> There were complaints from frustrated university professors and angry business people that public school students were woefully unprepared for college as well as for work. The typical high school student could not write a clear English sentence, do simple mathematics, or find common geographical locations such as Boston or New York City. There were no basic standards....The schools also were ignoring religion. The curriculum was inappropriate for life at mid-century, giving students worthless information and outdated training and worst of all, boring them. As one critic put it: "We are offering them a slingshot education in a hydrogen-bomb age." (Kent, 1987, p. 142).

In 1953 we saw publication of Arthur Bestor's Educational wastelands: The retreat from learning in our public schools and Albert Lynds best-selling Quackery in the public

schools. In the late 1950s we saw Hyman Rickover rip the schools, for they were endangering the nation. In the Saturday Evening Post a captain of a missile site reported that the draftees he received were unable to read, write or do simple arithmetic, and that he was getting the best of the recruits! Life magazine of 1958 said we were paying too much attention to "stupid children" and not enough to the gifted--that we simply had to set higher standards. Familiar laments, all.

And the business community was in on the criticisms then, as it is today (see Rippa, 1988). While celebrating the first quarter century of the National Association of Manufacturers (NAM), the treasurer in 1920 was applauded vigorously when he said

> I live in a manufacturing town....We are going to spend over a million dollars for a high school to teach the children of the working people of that town white collar, starched collar jobs....The expenditure that is now being made [for the public school system], and the laws that are being passed for its expenditure are as absolutely a waste as though it were thrown into the gutter (Rippa, 1988, p. 142).

In 1927 the chairman of the NAM education committee told the businessmen of the Association that

> "Forty percent of high school graduates haven't a command of simple arithmetic, cannot multiply, subtract, and divide correctly in simple numbers and fractions. Over forty percent of them cannot accurately express themselves in the English language or cannot write in their mother tongue (Rippa, 1988, p. 143).

It sounds so familiar. And this was when only a small elite finished high school. I wonder how the nation survived? Furthermore, decades before the lectures about Total Quality Management were offered to the schools by our business community, a community that by and large has failed to keep America economically strong, business executives also felt it necessary to lecture educators. The spokesperson for the National Association of Manufacturers informed the schools of his day about the marvels of management in that day, claiming that "the public schools should be systematized, thoroughly, comprehensively, and with the sole view of utmost efficiency; efficiency in every direction, to the last degree, and for the last child" (Rippa, 1988, p. 141). It should be clear by now that for the business community and the general citizenry of our nation the games of kick-the-teacher and dump-on-the-schools have a long history. Along with baseball, it seems to be our national pastime.

Conclusion

So what shall we make of all this? The data suggesting the gross failure of the American school system simply will not hold up. There has been a campaign of disinformation. As Clark Kerr noted "seldom in the course of policy making in the U. S have so many firm convictions held by so many been based on so little convincing proof" (Education Week, 2/ 27/ 91). A school reform movement based on so many invalid assumptions is bound to be wrongheaded. Some of the school reform efforts are thinly disguised elitist attempts to get rid of public education, to protect the privilege such individuals have already bestowed on their children. After all, the greater the disparities in schooling, the greater the assurance that the privileged have someone to mow their lawns, to wait at their tables and care for their children. The reforms they offer--higher standards, a tougher curriculum, more tests, with no increase in spending, will insure that the children of New Trier High School, near Chicago, and the children of Princeton, New Jersey, and the children of Manhasset, New York, will succeed even more than they do today. The children at P. S. 79 in the Bronx, New York, will fail at even greater rates than they do today. Children at P. S. 79 and similar schools in Los Angeles, California; Camden, New Jersey; Detroit, Michigan; and San Antonio, Texas--schools described so poignantly by Jonathan Kozol--do not have textbooks for their students, are forced to

hold some of their classes in closets, teach word processing skills without any word processors, teach science without laboratories, conduct physical education and art classes without proper equipment. These are schools that can not regulate heating or cooling or keep out the rain. Their teachers are often those rejected by the wealthier suburbs, and large percentages of their classes are taught by uncertified people.

Reforms of the kind being proposed will exacerbate the differences between the have and the have-not school districts. The haves are already doing quite well. Those children of privilege are attending decent schools, achieving well, scoring well on standardized tests, graduating high school, and going to college. They are the smartest and healthiest generation America has ever produced. There really is not much to reform for these kids, since their schools are not failing, at least by the traditional measures we use to assess such things. On the other hand, I see nothing in America 2000, and the new schools that are to break-the-mold, that will address the social issues causing parts of our nation's school system to be in ruin.

Instead of the President's five goals for the year 2000, let me suggest five that address the real failures of our schools more directly. First, let us agree with our education President that all children should come to school ready to learn. Let us therefore provide high quality day care and preschool to all American children, and ensure that they and their families

have the finest health care in the world. This is how we can ensure that they will come to school ready to profit.

Second, let us choose, as the President does, to have safe schools. But let us go on to guarantee every child a school where plumbing works, where toilet paper and chalk are available, where heating and cooling systems are operational, where the rain does not run into the school building, and, where the plaster is not falling. Let us guarantee each child access to current textbooks, computers, and science laboratories, and provide children who are eligible the bilingual education to which they are legally entitled. Maybe we could just guarantee that every child in America hall have a certified teacher who knows their name and their family.

Third, by the year 2000 we should be number one in the world in the percentage of eighteen year olds that are politically and socially involved. Far more important than our mathematics and our science scores is the involvement of the next generation in maintaining our democracy and helping those within it that need assistance--the young, the ill, the old, the retarded, the illiterate, the hungry and the homeless. Schools that cannot turn out politically active and socially helpful citizens should be identified, and their rates of failure announced in the newspapers.

Fourth, by the year 2000 we should strive to make the American teacher the highest paid in the world. Here is where we should emulate the Japanese. We should pay our teachers what they pay theirs. This would mean our teachers would earn ten percent more than whatever the top-level civil servant earns in the service of government. This would purchase and keep the talent needed to give our students the best schooling in the world.

Fifth, we should equalize the funding for schooling, so that schools in one part of the state or even within a district. cannot spend twice or three times more per-child per-year than other schools in the state. The parents of Grosse Pointe and Great Neck and Princeton should inform the state legislatures what it takes to educate their children properly, and that standard of support should be applied to every district in the state.

It is my belief that the American school system, as a whole, has been and continues to be a remarkable success. The campaign to discredit it and to blame it for the ills of our nation, leads inevitably to making the wrong decisions about what to fix. Greater school improvement will come from providing poor people with jobs that pay enough to allow them to live with dignity, than from all the fooling around we can do with curriculum and instruction, or with standards and tests. Children who are poor, unhealthy, and from families and

neighborhoods that are dysfunctional do not do well in schools. Educators cannot work miracles. Children from families that have some hope, some income and some health care have a chance. Families with those characteristics are in less stress and they take control of their neighborhoods. P. S. 79, on 181st Street in the Bronx is a neighborhood elementary school that is failing, and it was not always that way. When people in the tenements around that school had hope, that ugly school for the working classes was remarkably successful. I know. It is the school I attended in the neighborhood in which I grew up.

Educators must now speak up. It is time for us to inform the politicians and business leaders of America that we cannot solve all the problems that they are creating. We will no longer take the blame for their actions. All of us in this nation must find ways to help each family live with dignity, so those families can give their children hope. Education is irrelevant to those without hope, and succeeds, remarkably well for those who have it.

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