

Why High School Students Learn So Little
And What Can Be Done About It

Testimony
Subcommittee on Education and Health
U.S. Congress
October 1, 1987

John H. Bishop
Cornell University
Working Paper # 88-01

Center for Advanced Human Resource Studies
New York State School of Industrial and Labor Relations
393 Ives Hall
Cornell University
Ithaca, NY 14851-0952

Former Director of the Center for Research on Youth Employability
and
Associate Director for Research
National Center for Research in Vocational Education

This paper has not undergone formal review or approval of the faculty of the ILR School. It is intended to make the results of Center research, conferences, and projects available to others interested in human resource management in preliminary form to encourage discussion and suggestions.

I. THE PROBLEM

The National Commission on Excellence in Education has stated, "Learning is the indispensable investment required for success in the information age we are entering." The high American standard of living has always depended on the high quality of American workers. There is no way unskilled American manufacturing workers can compete with the millions of unskilled workers of India, China and Latin America. The watchword in American manufacturing is now "AUTOMATE, MIGRATE, OR EVAPORATE." Automation, however, requires a highly skilled and flexible work force. Skilled workers are essential for the design, introduction and maintenance of the advanced manufacturing technologies that must be adopted if we are to maintain our high standard of living.

The problems that General Motors and some other companies have had in introducing flexible manufacturing technology are, therefore, a cause of grave concern . General Motors recently ripped a whole multi million dollar line of robots out of its Lansing engine plant because they could not get it to work reliably. These are very complex interdependent systems. They would be a challenge for any work force. Apparently the challenge was too great for the managers, engineers and workers GM assigned to the task. It is a challenge that other companies in other countries have also faced and overcome. GM's problem is not all that atypical for US installations of flexible manufacturing systems(FMS). Ramchandran Jaikumar found that the 30 FMS installations he studied in the US were much less reliable than the 65 comparable Japanese installations he studied. Average metal cutting time was 20 hours a day in Japan compared to only 8.3 hours a day in the US. He attributed the difference almost entirely to the more effective way the

Japanese had created and managed intellectual assets. "The critical ingredient here is nothing other than the competence of a small group of people."(Ramchandran Jaikumar, Harvard Business Review, Dec. 1986). If our engineers and workers are not capable of making advanced manufacturing systems work reliably, our future as a world class manufacturing power is in doubt.

Further insights into our productivity lag can be gleaned from Andrew Weiss's study of why Japanese electronics manufacturers are more efficient than comparable Western Electric plants. Contrary to myth, he found that the Japanese workers were more likely to be absent, were more likely to quit, and worked at a slower pace than workers in Western Electric plants. The Japanese productivity advantage derived from working smarter, not harder. The suggestions made by employees during just one year had saved \$1987 per employee at one firm and \$2160 per employee at another. Weiss commented that "Only an exceptionally intelligent and well-motivated labor force is likely to produce such an impressive record of innovation."(Andrew Weiss Harvard Business Review July 1984) He attributed the quality of the work force to the fact that "Successful Japanese electronics manufacturers hire very selectively and recruit the elite of the Japanese labor force." The average quality of the pool from which they select is also very high and this is largely due to the high quality of Japanese primary and secondary education.

Hunter (1983) has examined how cognitive skills improve productivity on the job. Using actual work samples (rather than supervisor ratings) as the criterion of worker productivity, he found that most of the impact of cognitive ability on productivity was through its effect on job knowledge. It is job knowledge (a vocational skill), not general cognitive ability (basic

skills), that has the largest direct impact on actual productivity. This implies that cognitive skills' major contribution to productivity is that they help the worker learn new tasks more quickly. Promotions, turnover, and introduction of new technology make it necessary for worker's to learn new skills at many points in their life. The ability to learn and communicate must be developed early in life as preparation for a lifetime of adapting to change.

The quality of education is not the only determinant of a worker's productivity and a nation's competitiveness and standard of living, but it is probably the most important determinant that is under the control of government. Consequently, "the rising tide of mediocrity" in this arena is a cause of concern. There is mounting evidence that most young people have inadequate skills in communication, mathematics and reasoning. The National Assessment of Educational Progress's (NAEP) study of the literacy of young adults (Kirsch & Jungeblut, 1986) found, for example, that:

80% could not interpret a bus schedule well enough to determine when the next bus will arrive if the day is Saturday.

38% could not use a menu to determine the cost of a simple meal and calculate the change that would be received.

90% could not use unit price information to determine which product was more economical by calculating cost per ounce from cost per pound.

44% of blacks, 31% of Hispanics and 10% of whites could not even read a paycheck stub well enough to report gross earnings to date.

A NAEP study of humanities found that 17 year old high school students are woefully ignorant of American history and culture. Even though 80% were currently enrolled in an American history course, the studies found that:

39% did not know in which half century the U.S. Constitution was written.

68% did not know in which half century the U.S. Civil War took place.

Two-thirds could not name the author of the Canterbury Tales or the Brothers Karamozov.

Half could not identify Churchill or Stalin.

In math and science, fields which are believed to be particularly crucial to productivity and technological progress, our youth lag badly. When comparable tests were given to 17 year olds in college preparatory math and science courses in 15 countries it was found that:

The US no longer has a higher percentage of its 17 year olds taking advanced mathematics than other Western nations. The percentage of 17 year olds taking advanced mathematics was 13% in the US, 12% in Japan, 18% in Scotland and 30% in British Columbia.

"In most countries all advanced mathematics students take calculus. In the U.S. only one fifth (2.6% of the 17 year old age cohort) do." (McKnight, et al, 1986 viii)

The percent of questions answered correctly by US "advanced" students was 43% in algebra, 31% in geometry and 29% in calculus. The international median in these subjects was 57%, 42% and 46% respectively. Japanese scores were 78%, 60% and 66% respectively. (McKnight, et. al., 1986, p. 125)

On the international physics test first year U.S. students answered 34% of the questions correctly and second year students answered 44% correctly. The international median was 51% correct. Japanese and English students achieved mean scores of 58 and 59% respectively. (Jacobson, 1987)

Recently, there have been some heartening improvements in the academic achievement of high school graduates. Between 1981 and 1985, verbal SAT scores rose 7 points and math SATs rose 9 points. These gains, however, made up for only 1/6 and 1/3 respectively of the declines that had occurred in the previous 13 years (College Board 1985).

II. REASONS FOR POOR BASIC SKILLS

A major reason for the poor performance of our students appears to be lack of motivation. Studies of time use and time on task in high school

show that students actively engage in a learning activity for only about half the time they are scheduled to be in school. Absence rates of 15 percent or more are common. Considerable time is devoted to traveling to and from school and to and from area vocational schools or other special programs. Time is also used for extracurricular activities scheduled during school hours, for class changes, for lunch, and for other nonacademic activities.

Even when students are in class, the teacher and/or students are on task only part of the time. A study of high schools in Chicago found that public schools with high-achieving students averaged about 75 percent of classtime for actual instruction; for schools with low achieving students, the average was 51 percent of class time (Frederick 1977). Overall, 46.5 percent of the potential learning time was lost due to absence, lateness, and inattention (Frederick 1979). Other studies have found that for reading and math instruction the average engagement rate is about 75 percent (Fischer et al., 1978; Klein, Tyle, and Wright 1979; Goodlad 1983). For vocational classes it is about 56 percent (Halasz and Behm 1982). When absences, nonclass time, and nonengaged class time are combined, more than half of the weekday of the average high school student is not used for learning.

In 1980, high school students spent an average of 3.5 hours per week on homework. When homework is added to engaged time at school, the total time devoted to study, instruction, and practice is only 18-22 hours per week -- between 15 and 20 percent of the student's waking hours during the school year. By way of comparison, the typical senior in a public high school spent 10 hours per week in a part-time job and more than 20 hours per week watching television. Thus, TV occupies as much of an adolescents time as learning.

Even more important than the time engaged in learning is the intensity of the student's involvement in the process. After 2 years of study of American high schools, Sizer concluded, "No more important finding has emerged from the inquiries of our study than that the American high school student, as student, is all too often docile, compliant, and without initiative" (Sizer 1984). Goodlad had a similar observation "The extraordinary degree of student passivity stands out" (Goodlad 1984). The major cause of these problems is lack of motivation.

Student apathy and student motivation are not the whole of the problem. Parental apathy and parental motivation should also concern us. One of the most striking of Harold Stevenson's findings from his comparative study of education in Taiwan, Japan and the U.S. was that even though American children were learning the least in school, American parents were the most satisfied with the performance of their local schools. Why do Japanese and Taiwanese parents hold their children and schools to a higher standard than American parents?

The U.S. lag in mathematics was revealed by the First International Mathematics Study in 1967. Test scores turned down in 1968. Why did it take until 1981 for a major educational reform movement to get underway?

Why did our political system allow the quality of education to decline so dramatically? Why did we set such low standards for our schools? Why do we pay our teachers so little? Why do we give them so little respect? Thus the problem of apathy and motivation is as much a societal problem as it is a parental, a teacher or a student problem.

III. REASONS FOR LACK OF MOTIVATION

The fundamental cause of the apathy and motivation problem is the way

we recognize and reinforce student effort and achievement. The educational decisions of students are significantly influenced by the costs (in money, time and psychological effort) and benefits (praise, prestige, employment, wage rates, and job satisfaction) that result. Any number of empirical studies confirm this.¹ Our problem is that while there are benefits to staying in school, most students do not benefit very much from working hard while in school. The lack of incentives for effort is a consequence of three phenomena:

- * The labor market fails to reward effort and achievement in high school.
- * Competition for admission to selective colleges pits students at the same high school against each other not against an external standard.
- * The peer group actively discourages academic effort.

3.1 The Absence of Major Economic Rewards for Effort in High School

When asked why they work hard in school and/or why they care about grades, college-bound students typically respond, "to get into college" or "to get into a good college." For students who plan to look for a job immediately after high school, however, the situation is different. They typically spend less time on their studies than those who plan to attend college, in large part because most of them see very little connection between performance in high school and their future success in the labor market. Their teachers, of course, tell them that they are wrong, that they will be able to get a better job if they study hard. They look at the labor market and can see that what the teacher says is not true. How successful their older friends are in the labor market does not depend on how much they learned in high school. And their perception is correct, at least in the short run. Consider the following facts:

- o For high school students, high school grades and the abilities measured by standardized tests have essentially no impact on labor market success. They have -
 - no effect on the chances of finding work when one is seeking it during high school, and
 - no effect on the wage rate of the jobs obtained while in high school. (Hotchkiss, Bishop and Gardner 1982)
- o As one can see in figure 1, for those who do not go to college full-time, high school grades and test scores have -
 - no effect on the wage rate of the jobs obtained immediately after high school,
 - a moderate effect on wage rates and earnings after 4 or 5 years,
 - a small effect on employment and earnings immediately after high school.
- o In almost all entry-level jobs, wage rates reflect the level of the job not the worker's productivity. Thus, the employer, not the worker, benefits from a worker's greater productivity. Cognitive abilities and productivity make promotion more likely, but it takes time for the imperfect sorting process to assign a particularly able worker a job that fully uses that greater ability -- and pays accordingly.

The long delay before labor market rewards are received is important because most teenagers are now oriented so benefits promised for 10 years in the future may have little influence on their decisions.

3.2 The Benefits to Employers and Society of Basic Skills

Although the economic benefits of higher achievement to the employee are quite modest and do not appear until long after graduation, the benefits to the employer (and therefore, to national production) are immediately apparent in higher productivity.

Over the last 80 years, industrial psychologists have conducted hundreds of studies, involving many hundreds of thousands of workers, on the relationship between productivity in particular jobs and various predictors of that productivity--general achievement/aptitude tests, biographical inventories, years of schooling, grade point averages, years of experience relevant to the job, age, tests of job knowledge, work samples, peer ratings,

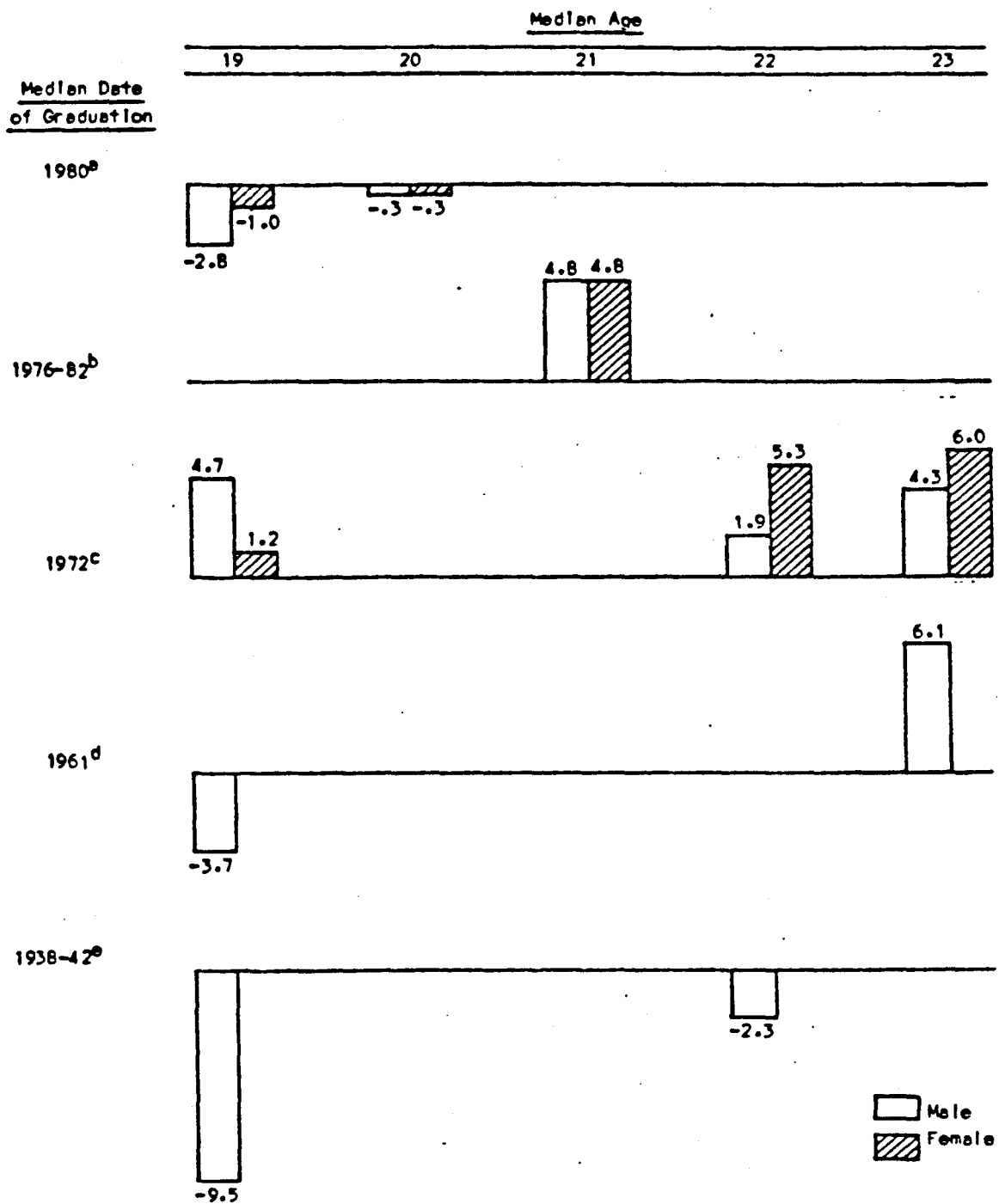


Figure 1. Impact of high school achievement on wage rates shortly after graduation.

NOTE: Bars represent the percentage change in wage rate due to an increase in academic achievement equivalent to 100 points on an SAT test. Source: derived from Appendix Table 1 and 2: ^aKang, HSR (1984); ^bGardner, NLS Youth (1983); ^cMeyer, Class of '72 (1982); ^dHouse & Talent (1975); and ^eTaubman & Wales (1975).

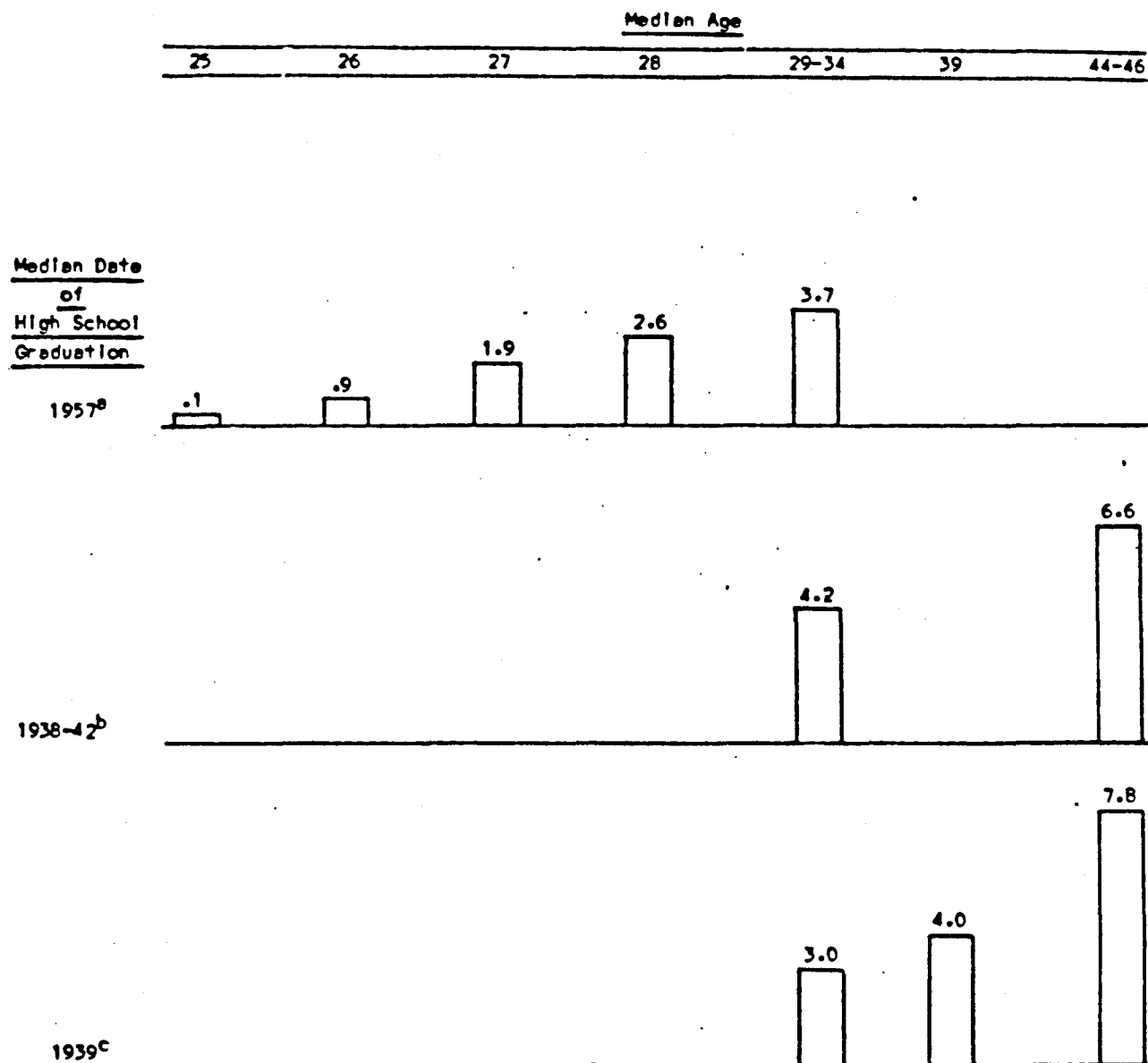


Figure 1a Impact of high school achievement on yearly earnings long after graduation.

NOTE: Bars represent the percentage increase in yearly earnings due to an increase in academic achievement equivalent to 100 points on an SAT test. Source: derived from Appendix Table 2: ^aHauser, Deymont, & Wise (1977); ^bTaubman & Wales, NBER-TH (1975); and ^cHauser & Rogers (1975).

interviews, and reference checks. Their findings make it clear that the skills schools try to teach (as measured by achievement and aptitude test) do indeed lead to better performance on the job.

Achievement/aptitude tests can be classified into three basic types, each measuring different abilities:

- o General mental achievement--General mental achievement tests (such as the Scholastic Aptitude Test (SAT), the ASVAB and components of the GATB focus on verbal, quantitative, and reasoning abilities. Thus, they test the competencies that are the prime objectives of schooling. [School attendance has been shown to improve performance on these tests (Lorge, 1945). Improvements between World War I and World War II of 3/4 ths of a standard deviation (the equivalent of 80 SAT points) in the average test scores of army draftees.]
- o General perceptual ability--General perceptual ability is a combination of perceptual speed and spatial and mechanical ability. It includes the ability to perceive detail quickly, to identify patterns, to visualize objects, and to perform other tasks that rely on speed or accuracy in picking out one element from a mass of apparently undifferentiated elements. It demonstrates knowledge of mechanical and electronic principles and facts.
- o Psychomotor ability--Psychomotor tests measure the ability to perceive spatial patterns and ability to physically manipulate objects quickly and accurately. An example is a dotting test, which requires the test taker to place a single dot within each of a series of very small circles.

Tests that are closely tied to the skills actually used on the job are, of course, the best predictors of an applicant's future performance on that job. For this reason, different kinds of aptitude tests are used to predict job performance for different types of jobs.

The results of numerous studies provide important evidence that basic skills (measured by general mental ability tests) significantly improve productivity on all types of jobs. I have recently completed an analysis of the effect of various kinds of cognitive and psychomotor achievement on worker productivity. The data base for this study is the US Employment

Service's Individual Observation Data File containing the results of GATB revalidation studies of the productivity of 31,399 workers in 143 different occupations. The results are summarized in Figures 2 through 6. The bars represent in 1985 dollars the effect on productivity of a one standard deviation (1 SD is equal to about 110 points on an SAT test) gain in this type of achievement while work experience and all other forms of achievement are held constant. Quite clearly academic achievement, especially math achievement, has a very large effect on worker productivity. The effect of a gain in math achievement on job performance is more than twice as great as the effect of an equivalent gain in verbal achievement.

Verbal achievements can be demonstrated on application forms and in interviews; math achievement cannot. Consequently, verbal achievement is rewarded more than math achievement. Many students avoid the more rigorous math and science courses, and, as a result, our nation faces a shortage of engineers and scientists. These results clearly imply that schools need to increase the time devoted to math and science and raise standards in these courses. Special attention needs to be given to nurturing mathematical and scientific talent.

Figure 7 compares the impact of mathematical and verbal achievement (specifically a difference of the 110 points on both the math and verbal SATs or its equivalent on other tests and GPA) on the productivity of a clerical worker, on wages of clerical workers, and on the wages of all workers^{2,3}. Productivity is clearly raised much more than wage rates. Apparently it is a youth's employer, not the youth, who benefits the most when a non-college-bound student works hard in school and improves his or her academic achievements. The youth is more likely to find a job but not

CLERICAL OCCUPATIONS

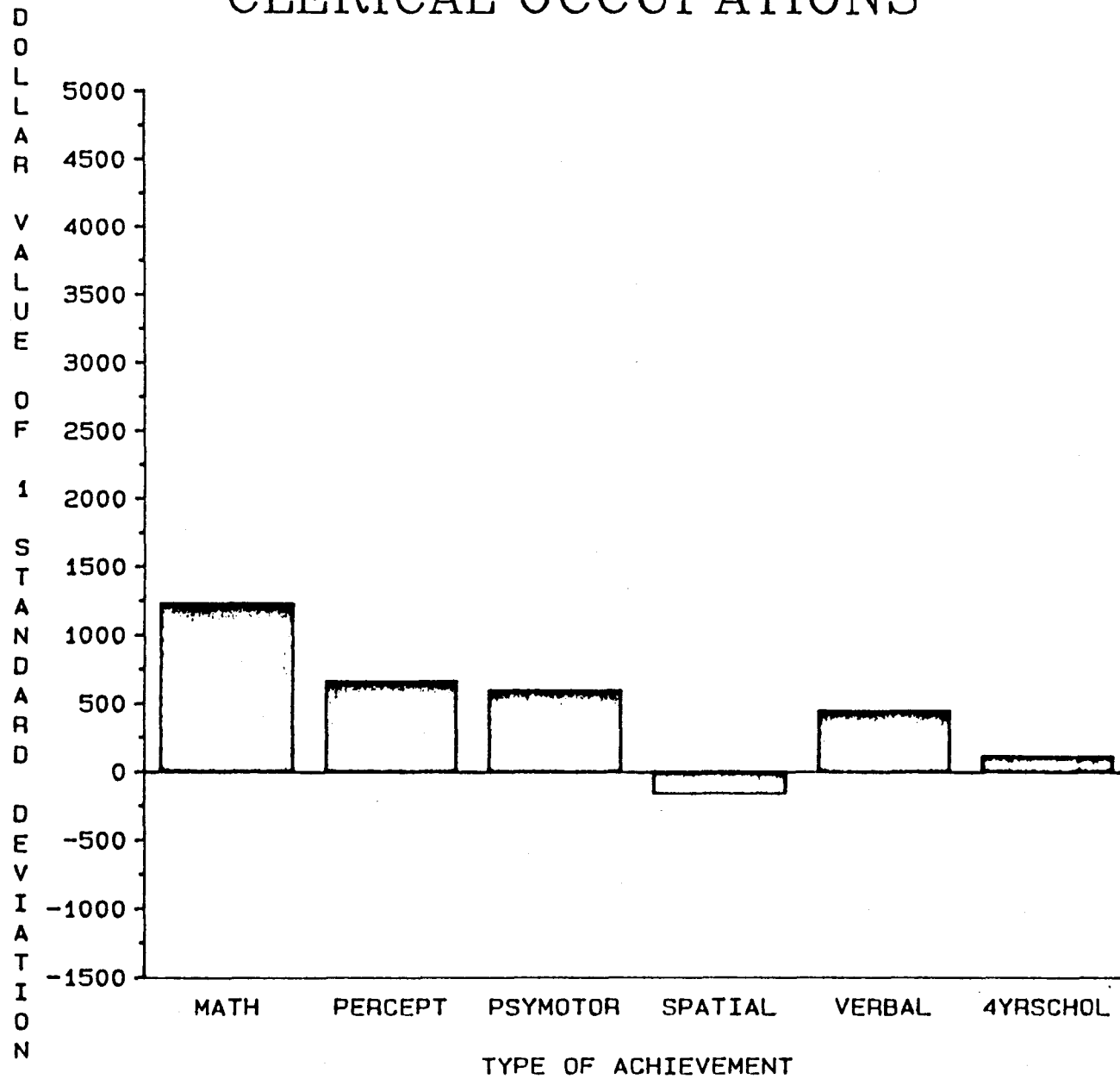


FIGURE -2

CRAFT OCCUPATIONS

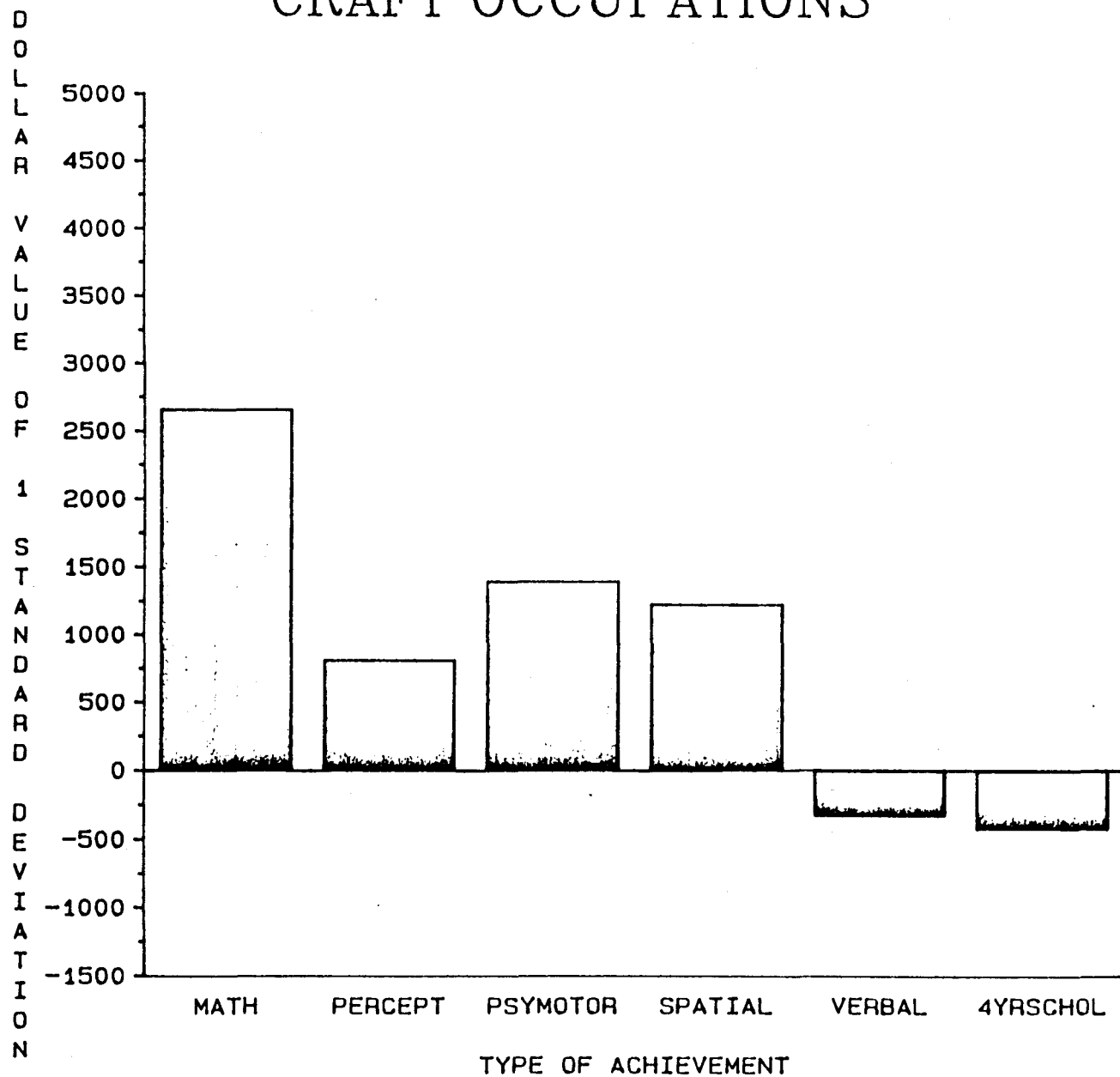


FIGURE -3

OPERATIVE AND LABORER OCCUPATIONS

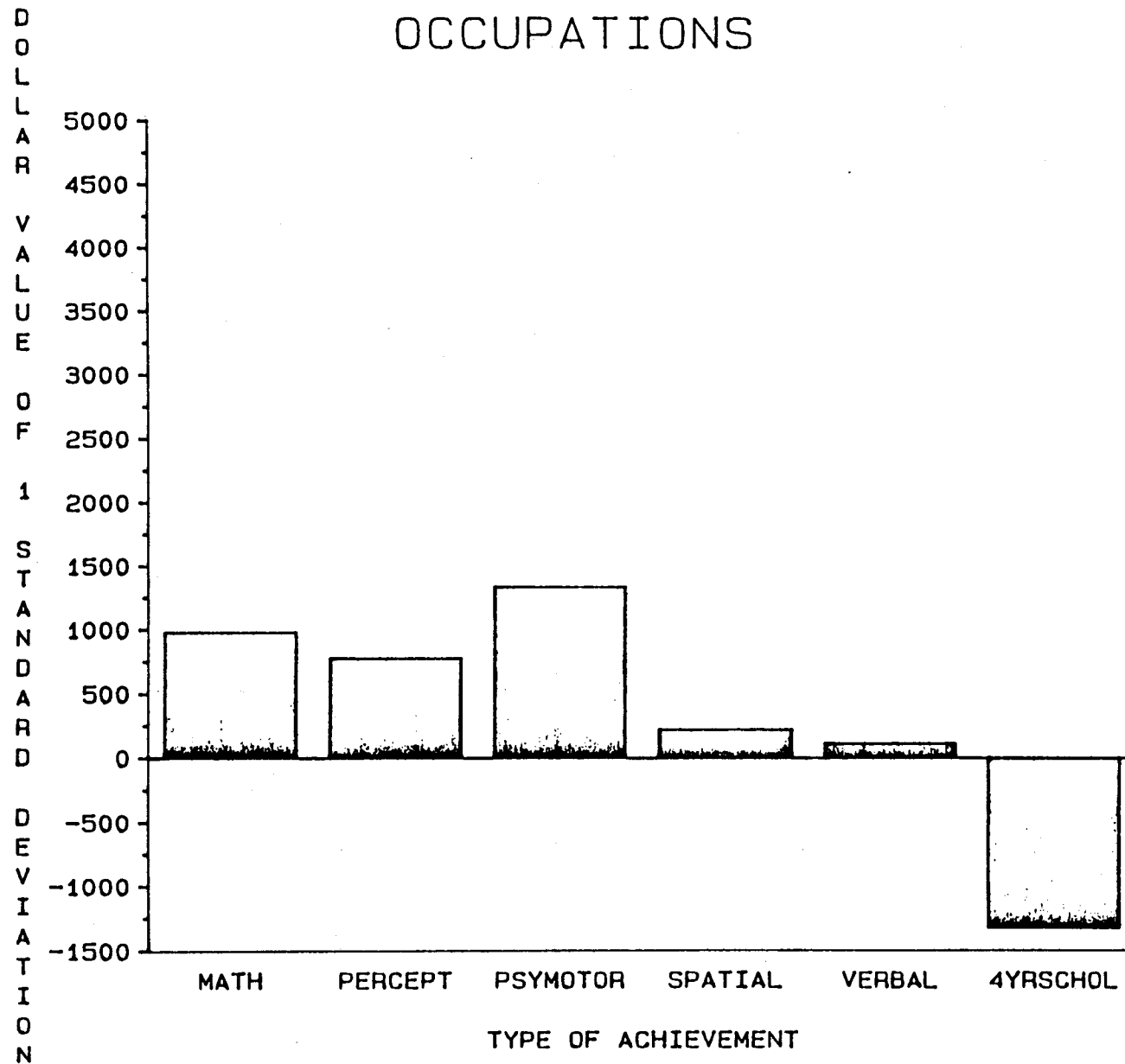


FIGURE -4

SERVICE OCCUPATIONS

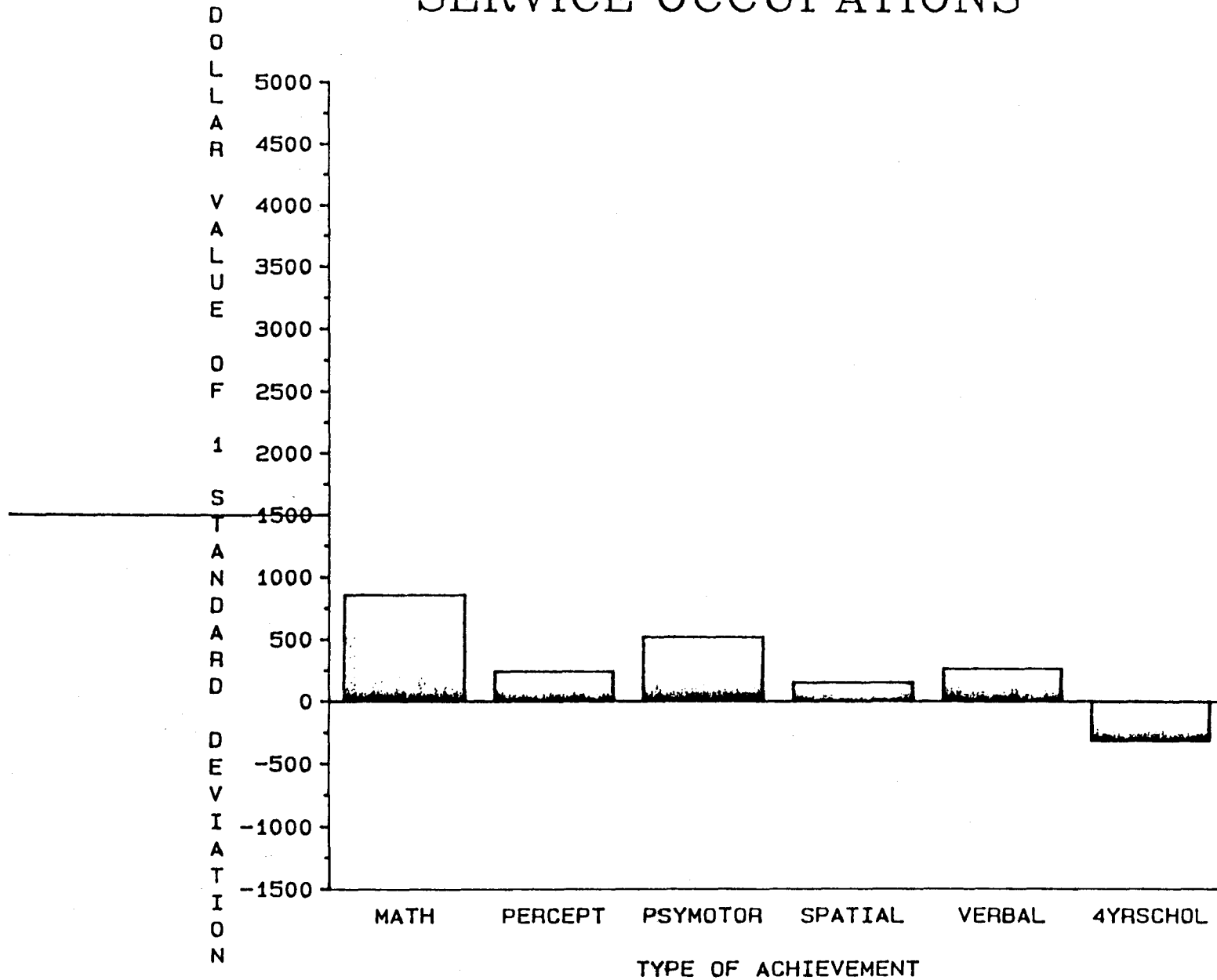


FIGURE .-5

TECHNICAL OCCUPATIONS

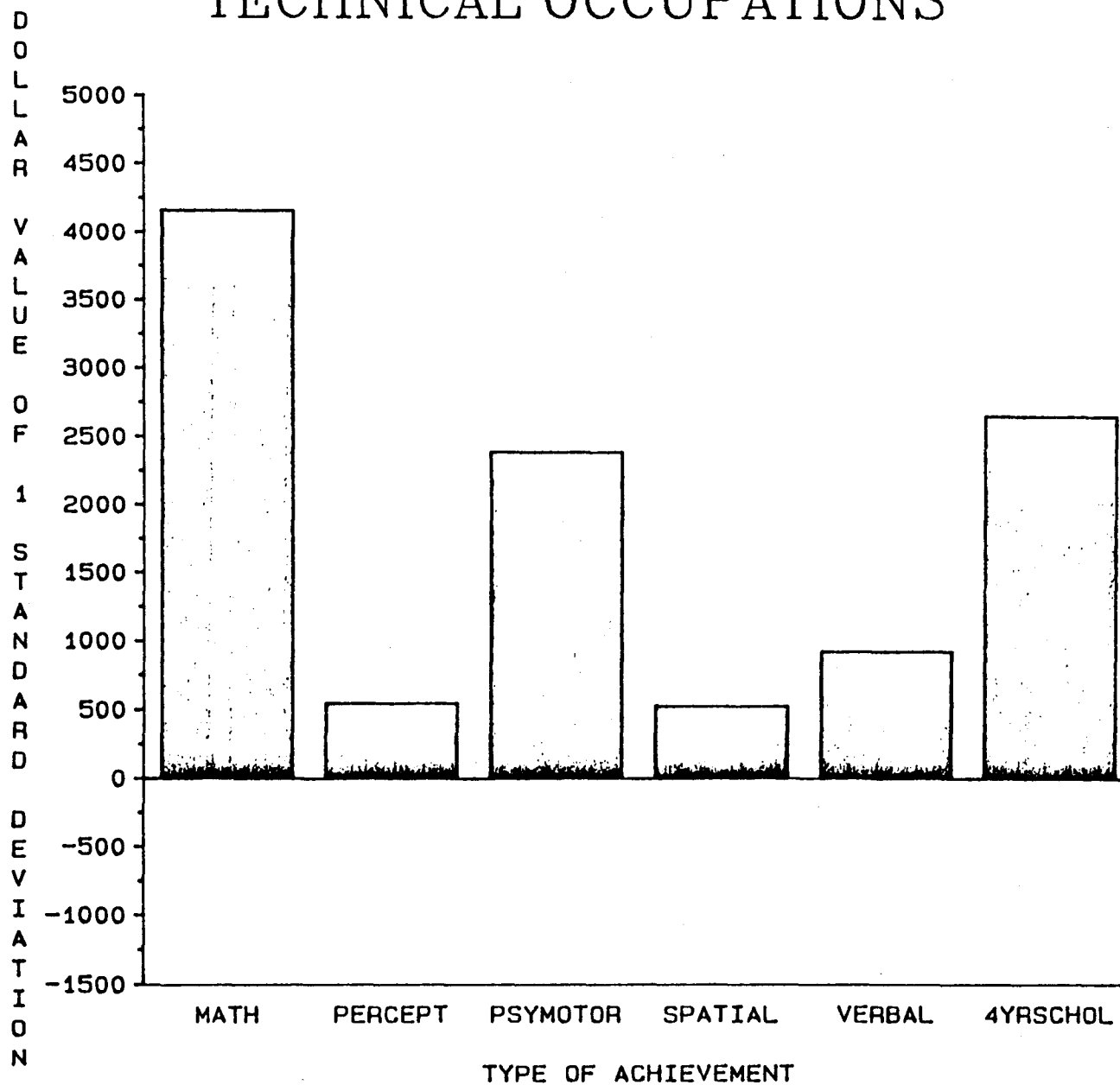


FIGURE -6

**Impact of 110 Point
Improvement
on both Math and Verbal SAT**

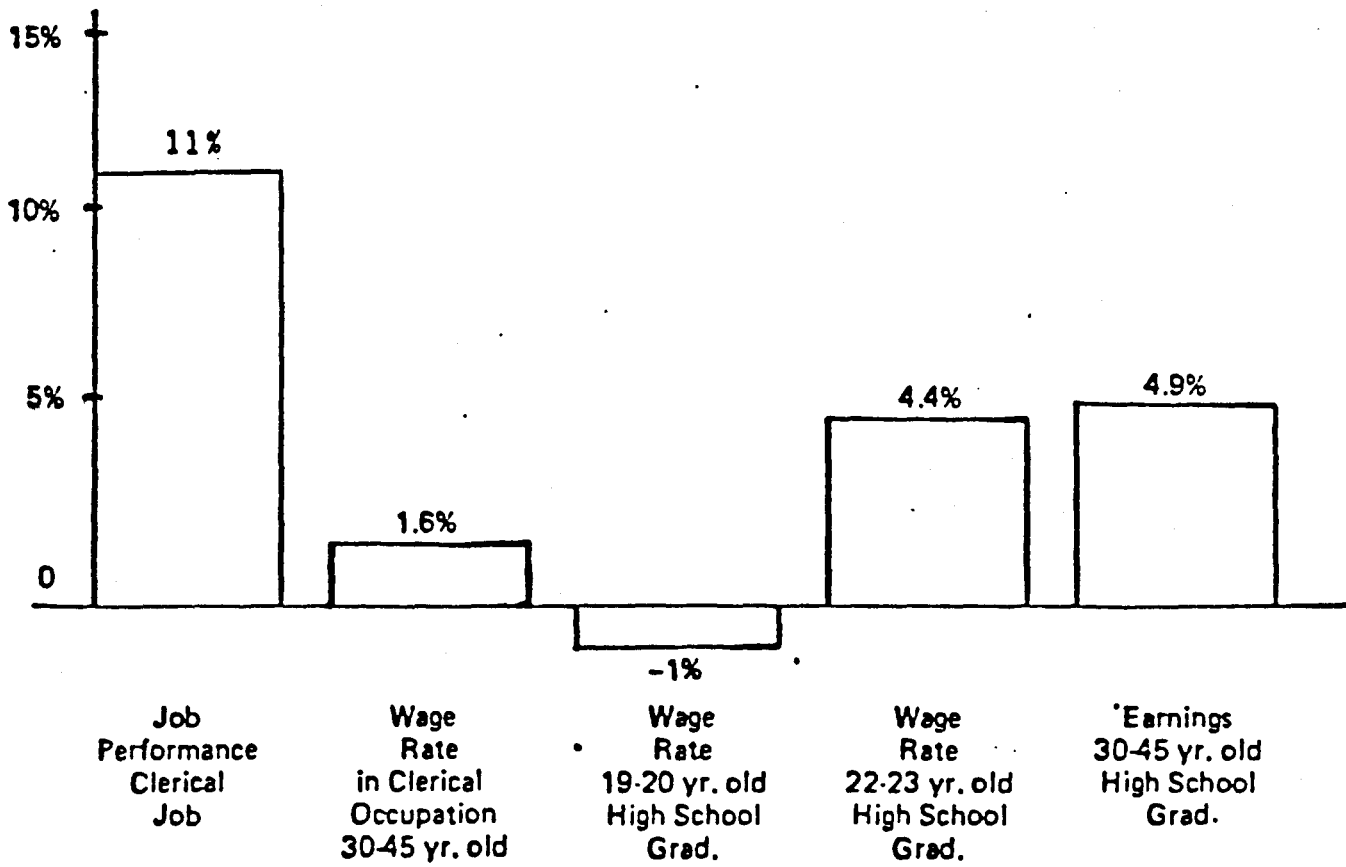


Figure 7

one with an appreciably higher wage. The next section examines reasons for the discrepancy.

3.3 Reasons for the Discrepancy between Wage Rates/Earnings and Productivity on the Job

Employers are presumably competing for better workers. Why doesn't competition result in much higher wages for those who achieve in high school or for those who do well on a general mental ability test? The cause appears to be the lack of objective information available to employers on applicant accomplishments, skills, and productivity.

Tests are available for measuring some skills, but court decision, e.g., *Griggs vs. Duke Power Company* (1971), and pressure from Equal Employment Opportunity Commissions have reduced their use. Consequently, hiring selections and starting wage rates often do not reflect the competencies and abilities students have developed in school or through on-the-job training in previous positions. Instead, hiring decisions are based on observable characteristics (such as years of schooling and field of study) that serve as signals for the competencies the employer cannot observe directly. As a result, the worker's wage reflects the average productivity of all workers with the same set of educational credentials rather than that individual's productivity.

Employers can also get the objective information they need through transcripts and through referrals from trusted sources that know about the applicant. Both these means are under used.

Little Use of Transcripts

Employers currently make only limited use of high school transcripts in hiring. The only information about school experiences requested by most

job application forms is years of schooling, whether a diploma or certificate was obtained, and area of specialization, if any. These attributes play an important part in employer decisions. Probably because of unreliable reporting, most applications do not ask the individual to report grade point averages. If a student or graduate has given written permission for a transcript to be sent to an employer, the Buckley amendment obligates the school to respond. Many high schools are not, however, responding to such requests. The experience of Nationwide Insurance, one of Columbus's most respected employers, is probably representative of what happens in most communities. Permission to obtain high school records is obtained from all young people who interview for a job. Nationwide sent over 1,200 such signed requests to high schools in 1982 and received only 93 responses. Employers reported that colleges were much more responsive to transcript requests than high schools. High schools have apparently designed their systems for responding to requests for transcripts around the needs of colleges and their college attending graduates not around the needs of employers and their graduates who are seeking a job.

There is an additional barrier to the use of high school transcripts in selecting new employees--when high schools do respond, it takes a great deal of time for them to do so. For Nationwide Insurance the response almost invariably took more than 2 weeks. Given this time lag, if employers required transcripts prior to making hiring selections, a job offer could not be made until a month or so after an application had been received. Most jobs are filled much more rapidly than that. The 1982 NCRVE employer survey of employers found that 83.5 percent of all jobs were filled in less than a month, and 65 percent were filled in less than 2 weeks. as a result, nearly

99 percent of the youth hired at Nationwide were selected before their high school transcripts were received. (Employers are equally unwilling to wait for written referrals from previous employers; at Nationwide, most of the written references requested from previous employers arrived after hiring decisions had already been made.)

3.4 The Large Social Benefits vs. Small Private Rewards

The evidence presented implies that the social benefits of developing basic skills are considerably greater than the private rewards. Despite their higher productivity young workers who have achieved in high school and who have done well on academic achievement tests do not receive higher wage rates immediately after high school. The student who works hard must wait many years to start really benefiting and even then the magnitude of the wage and earnings effect--a 1 to 2 percent increase in earnings per grade level equivalent on an achievement test--is considerably smaller than the actual change in productivity that results.

Learning that is certified by a credential is rewarded handsomely. Learning not certified by a credential is either not rewarded or only modestly rewarded. Consequently there are strong incentives to stay in school; but much weaker incentives to study hard while in school. Performance in school is hard to verify because transcripts are not very informative, because job seekers do not bring their transcripts with them when they apply for a job, and because the requirement of written permission for release means the transcript often cannot arrive in time to influence the hiring decision. The consequence is under investment in the quality of one's education both in school and at jobs. The lack of significant rewards for academic achievement in the years immediately after leaving school contributes to

the lack of motivation of many high school students and the resulting deficit in basic skills and higher level reasoning abilities.

The tendency to under reward effort and learning in school appears to be a peculiarly American phenomenon. Grades in school are a crucial determinant of which employer a German youth apprentices with. Top companies in Japan and Europe often hire lifetime employees directly out of secondary school. Teacher recommendations, grades in school and scores on national and provincial exams have a significant impact on who gets to work at the more prestigious firms (Leestma, et. al., 1987). Japanese parents know that their son or daughter's future economic and social rank in society critically depends on how much he or she learns in secondary school. Learning achievement is defined and measured relative to everyone else in the state or nation and not just relative to ones classmates in the school. This is why Japanese parents demand so much of their children and of their schools. Japanese adolescents work extremely hard in high school but once they have entered college, they stop working. A country club atmosphere prevails. The reason for the change in behavior is that employers apparently care only about which university the youth attends, not about the individual's academic achievement at the university. Working hard is not a national character trait, it is a response to the way Japanese society rewards academic achievement.

Now let us return to the question of why parents and elected school officials in the US were so apathetic about school quality during the 1970's. Why is it irrelevancies like school closings that draw the crowds to school board meetings and not debates over standards? Why are American parents so happy with schools that do such a poor job of teaching? I suggest that

student apathy, parental apathy, school board apathy and political apathy regarding secondary education all have the same two root causes.

3.5 No Fault Adolescence

The first cause is a syndrome I call NO FAULT ADOLESCENCE. During the 1960's and 1970's we adopted practices and developed institutions which hid from ourselves our failure to teach, which protected our adolescents from the consequences of their failure to learn and which prevented many of those who did learn from reaping the fruits of their labor. If learning were defined by an absolute standard not by ones ranking in the school and the rewards for learning were as attractive as they are in Japan, everyone--students, teachers, parents and school boards--would behave very differently. Parents would demand that their school be the best and would be willing to tax themselves heavily to achieve that result. The status and salary of secondary school teachers would rise, the requirements for entry into the profession would increase, and standards of teacher performance would improve. If parents were not satisfied with their child's academic progress, they would send him or her to a tutor or an after school just as Japanese parents do. Adolescents would no longer be such reluctant learners.

How does our society institutionalize no fault adolescence? In part it is a result of social promotion. But more significantly it is a consequence of the way employers select young workers. When hiring young people recently out of high school, most employers, even those like IBM and Morgan Guarantee and Trust who receive hundreds of applications for every opening, do not demand to know what was learned in school. Credentials are generally awarded for time spent in school, and all other information on what was learned in school is very difficult for employers to obtain. Most

employers have given up trying to find out. As a result, the quality of the job one obtains after high school is little effected by effort and accomplishment in high school.

3.6 The Zero-Sum Nature of Academic Competition in High School

The second root cause of the lack of real motivation to learn in middle school and secondary school is the ZERO SUM NATURE OF THE ACADEMIC GAME. Under our current system the academic side of school forces adolescents to compete against each other. Their achievement is not being measured against an absolute or an external standard. In contrast to Scout merit badges where recognition is given for achieving a fixed standard of competence in a given field, the only measures of achievement that receive attention in school are measures of one's performance relative to one's close friends such as grades and rank in class. When a student tries hard and excels in school, he/she is making things worse for his or her friends. When we set up a zero sum competition among close friends, we should not be surprised when they decide not to compete. All work groups have ways of sanctioning "rate busters." High school students call them "brain geeks", "grade grubbers" and "brown nosers". One student told me that "In most of the regular classes... if you raised your hand more than twice in a class, you were called a 'teachers pet.'"

Adolescents do not mind working hard. Watch them working at Wendys and McDonalds. Watch them working on a Scout merit badge. Watch them at football practice. In these environments they are not competing against each other. They are working together as part of a team. Their individual efforts are visible to their peers and appreciated by them. On the sports field, there is no greater sin than giving up, even when the score is

hopelessly one sided. On the academic side of high school, there is no greater sin than trying hard.

The lack of external standards for judging academic achievement and the resulting zero sum nature of academic competition in the school also influences the school board and the political system. Parents can see that setting higher academic standards or hiring better teachers will not improve their child's grade point average or rank in class. The Scholastic Aptitude Test is intended to be curriculum free. Raising standards at the high school will have only minor effects on how my child does on the SAT, so why worry about standards. In any case, doing well on the SAT matters only for those who aspire to attend a college like Brown or Cornell. Most students are planning to attend a public college, many of which admit all high school graduates from the state with the requisite courses.

The parents of children not planning to go to college have an even weaker incentive to demand high standards at the local high school. They believe that what counts in the labor market is getting the diploma not learning algebra. They can see that learning more will be of only modest benefit to their child's future and that higher standards might put at risk what is really important--the diploma.

Only at higher levels of government such as the state or nation do the real costs of mediocre schools become apparent. The whole community loses because the work force is less efficient and it becomes difficult to attract new industry. Competitiveness deteriorates and the nation's standard of living declines. This is precisely the reason why state governors and state legislatures have been the energizing force of school reform. State governments, however, are far removed from the classroom and the instruments

available to them for imposing reform are limited. Minimum competency tests for receiving a high school diploma are an example of an externally imposed standard of achievement. They are a step in the right direction especially when they are taken early in high school and remedial classes are offered after school and during the summer for those who fail on the first try. Some students arrive in high school so far behind, however, and the consequences of not getting a diploma are so severe, we have not been willing to set the minimum competency standard very high. As a result, minimum competency tests have only modest incentive effects for the great majority of the students.

3.7 The Consequences for Classrooms Interaction

The lack of standards of achievement external to the classroom also has a damaging effect on the motivation of students and teachers. As TheodoreSizer has observed, "A lot of the honors students aren't questers. They dodge the hard problems, the hard courses, to keep their averages up."(p. 53) Teachers find it difficult to escape being infected by the lassitude for the students can be cruel if they are not entertained or if they perceive the work load to be too heavy. Sizer's description of Ms. Shiffe's class, was strikingly similar to one of the classes I visited in my research:

Even while the names of living things poured out of Shiffe's lecture, no one was taking notes. She wanted the students to know these names. They did not want to know them and were not going to learn them. Apparently no outside threat--flunking, for example--affected the students. Shiffe did her thing, the students chattered on, even in the presence of a visitor....Their common front of uninterest probably made examinations moot. Shiffe could not flunk them all, and if their performance was uniformly shoddy, she would have to pass them all. Her desperation was as obvious as the students cruelty toward her."(p157-158)

How does a teacher avoid this treatment? Sizer's description of Mr. Brody's class provides one example.

He signaled to the students what the minima, the few questions for a test, were; all tenth and eleventh-graders could master these with absurdly little difficulty. The youngsters picked up the signal and kept their part of the bargain by being friendly and orderly. They did not push Brody, and he did not push them. The classroom was tranquil and bland. By my watch, over a third of the time was spent on matters other than history, and two-thirds of the classes ostensibly devoted to the subject were undemanding. Brody's room was quiet, and his students liked him. No wonder he had the esteem of the principal who valued orderliness and good rapport between students and staff. Brody and his class had agreement, all right, agreement that reduced the efforts of both students and teacher to an irreducible and pathetic minimum. (p. 156)

Some teachers, through brilliance or force of personality, are able to overcome the obstacles and stimulate their students to learn. But for most mortals the lassitude of the students is too demoralizing. Everyone in the system recognizes that there is a problem, but each group fixes blame on someone else. The teachers tend to blame the parents or the administrators. The students and parents tend to blame the teachers. As one student put it:

As it stands now, there is an unending, ever increasing cyclic problem. Teacher and administrator disinterest, apathy and their lack of dedication results in students becoming even more unmotivated and docile, which in turn allows teachers to be less interested and dedicated. If students don't care, why should teachers? If teachers don't care, why should the students (Krista 1987).

Yes it is a classic chicken vs egg problem. We assign teachers the responsibility for setting high standards but we do not give them any effective means except the force of their own personality for inducing student acceptance of the academic goals of the classroom. Most students view the costs of studying hard as much greater than the benefits, so the peer group pressures the teacher to go easy. As Sizer and others have observed, all too often teachers are forced to compromise their academic demands by their inability to induce the bulk of the class to accept them as reasonable and

legitimate. We would like the students to perceive themselves as a team and the teacher as a coach both working toward a common goal. Unfortunately, the teacher is often viewed as a judge whose only power is to reward one student at the expense of another.

The message of this paper is that the cause of the problem is really the system by which we define and reward academic achievement. In the current institutional environment, one cannot realistically expect to identify and attract enough gifted teachers to solve the problems described above.

IV. HOW TO IMPROVE THE QUALITY OF EDUCATION

The rapid gains in academic achievement overseas and declining achievement here spell trouble for the American economy. The problem is so serious and so longstanding nothing short of radical reform will help. Most of the reforms now underway are desirable, but by themselves they are insufficient.

Proposed reforms of secondary education include stricter graduation requirements, more homework, increases in the amount and difficulty of course material, greater emphasis on the basics (English, math, science, social science, computer science), and improvements in the quality of teaching through higher salaries, career ladders, and competency tests for teachers. Although important, these reforms are limited in that they emphasize changes in the content and quality of what is offered by the school and require the student to work harder. They have given insufficient attention to how to motivate students to work harder. Learning is not a passive act; it requires the time and active involvement of the learner. In a classroom with 1 teacher and 18 students, there are 18 learning hours spent to every 1 hour of teaching

time. Student time is therefore very important and how intensely that time is used affects learning significantly. Students should be given the opportunity to devote more time to learning. Clearly, then, attention needs to be given to how much time and energy students devote to learning.

The key to motivation is recognizing and rewarding learning.

Individualized learning goals should be established which stretch the student to the maximum extent possible. Achievement of these goals would be assessed by the school and recognized at an awards ceremony. The student would receive a competency profile describing these achievements that would aid in securing employment. If the labor market knows who has learned what, it will provide the rewards.

The second way schools can generate stronger incentives for learning is to restructure schoolwide and classroom recognition of student achievement so that everyone has a chance to be recognized for their contribution, greater effort by everybody makes everybody better off, and there are significant rewards for learning and real consequences for failing to learn. As Theodore Sizer has advocated, "The better the performance, the greater [should be] the latitude given the student." (Sizer p. 67) Bloom's theory of mastery learning says that there are no differences in what people can learn, only differences in the rate at which people learn. Given enough time, everyone can achieve mastery. There is a need for massive doses of mastery learning. The primary consequence of a failure to learn should be more time devoted to learning. Extra classes could be scheduled after school and during the summer. Learning would be defined as gains in competence and gains in knowledge, not as an absolute standard of performance. The gifted and the handicapped would be stretched as would everyone else. The

