



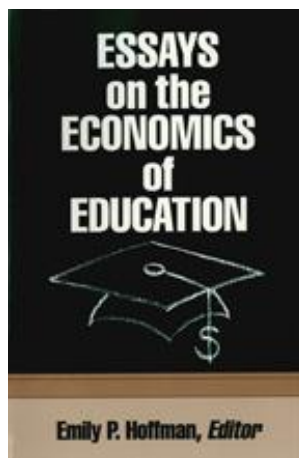
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# The Economics of Education for At-Risk Students

Henry M. Levin  
*Stanford University*



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# The Economics of Education for At-Risk Students

Henry M. Levin  
*Stanford University*

The nation currently faces an immense crisis in addressing the education of at-risk students—pupils who are unlikely to succeed in existing schools. Such students currently comprise over one-third of all elementary and secondary school students, and their numbers are rising absolutely and proportionately over time. At-risk students are about two years behind grade level in school achievement by sixth grade and perform at about the eighth-grade level if they graduate from high school. Over half do not graduate. Their poor educational performance does not provide them with the skills needed for labor market success and further training, a situation with serious consequences for the economy.

At-risk students are defined as those who are unlikely to succeed in school as these institutions are currently constituted because they do not have the experiences in the home, family, and community on which school success is based. Given the existing curriculum and instructional practices, schools are not neutral arenas in which all types of student backgrounds lead to success. Students who come from middle-class and nonminority backgrounds, with both parents present in their lives, and who speak a standard version of English are much more likely to succeed educationally than those from impoverished, minority, immigrant, nonstandard English-speaking, and single-parent backgrounds. At-risk students are caught in a mismatch between their home situations and what schools require for success. An effective set of policies to improve educational outcomes for at-risk students requires addressing both the in-school and out-of-school experiences of these children.

This article will focus on the contributions that economic analysis can provide in addressing the educational needs of at-risk students. The first part will present information on the demography and educational

status of at-risk students and some economic consequences. The second will offer a summary of what is known about the economic returns to investments in these populations. The final part of the paper will present a new microeconomic approach to the schooling of these youngsters, which has shown promise.

### **A Crisis of At-Risk Students**

The challenge of addressing the needs of at-risk students is important because they are a large and growing portion of student enrollments in the United States, and their poor educational performance has important consequences for the economy and society. It is widely viewed that high school completion represents a minimum qualification for the vast majority of jobs in the U.S. labor force and for eligibility for further training. Students from minority and low-income backgrounds are far more likely to fail to complete high school than other groups, and the proportion of both minorities and children from impoverished circumstances is increasing among the school population.

Among members of the labor force between 25 and 29 years old in 1985, only about 14 percent had failed to complete high school or its equivalent (U.S. Department of Commerce, Bureau of the Census 1987). But the figure among blacks was 19 percent and among Hispanics it was almost 40 percent. Both among minorities and whites, persons from families of low socioeconomic status have considerably higher dropout rates than those from more advantaged backgrounds (Rumberger 1983). Similar patterns exist for academic achievement, in which those from low socioeconomic backgrounds and of minority status show considerably lower test scores than their white and nondisadvantaged counterparts (Smith and O'Day 1991).

The fact that populations of school children who are minorities or from low-income families, especially where the parents have not completed high school, represent a substantial and increasing portion of school enrollments is a particularly ominous situation. From 1970 to 1980, U.S. public school enrollments from the preprimary level to twelfth grade declined from about 46 million to 41 million students.

During the same time period, minority enrollments rose from about 9.5 million to about 11 million, or from about 21 to 27 percent of the total (National Center for Educational Statistics 1984, p. 16). By the year 2020, it is expected that minority children will represent almost half of all children aged 17 and under (Pallas, Natriello, and McDill 1989), a figure that has already been reached in California and Texas. Minority students comprise three-quarters or more of the enrollments of many of the largest cities of the nation, including New York, Chicago, Los Angeles, Philadelphia, Miami (Dade County), and Detroit (McNett 1983). Minority enrollments have been increasing at a more rapid pace than the general population because of considerably higher birth rates and immigration—both legal and undocumented—that have been unprecedented in recent decades. Both factors create rapid growth, particularly among school-age populations. Immigrant and other minority populations tend to be young and of childbearing age, in contrast to an older, nonminority population.

When poverty is used as an indicator for “at-risk” populations, a similar pattern emerges. Between 1969 and 1979 the proportion of children in poverty stayed at about 16 percent; but it rose precipitously to 22 percent by 1983 and is projected to reach 27 percent of the children 17 years and under by 2020 (Koretz and Ventresca 1984; Pallas, Natriello, and McDill 1989). This is a rise from about 15 million to over 20 million children in poverty. Between 1984 and 2020 the number of children who are not living with both parents is expected to rise by 30 percent from 16 million to over 21 million (Pallas, Natriello, and McDill 1989). This is especially alarming, given that the real incomes of single mothers with children fell in absolute terms by 13 percent between 1970 and 1986 (Congressional Budget Office 1988).

Trends for other indicators of children at-risk have been moving in the same direction. For example, Pallas, Natriello, and McDill (1989) project that the number of children raised in families where the mother has not completed high school will rise by 56 percent to over 21 million by 2020. Of particular importance are the low educational attainments of immigrants drawn from rural regions of some of the poorest countries in the world. For example, of the largest single group of immigrants into California—Mexicans—only about 28 percent had more than an eighth-grade education in the early 1980s (Muller 1985, p. 7).

Not only are the numbers of at-risk students growing but there is evidence that their degree of disadvantage is increasing, too. In the fall of 1972 about 46 percent of Hispanic high school graduates participated in postsecondary education immediately following graduation (National Center for Education Statistics 1984, p. 160). By the fall of 1980 that proportion had fallen to 40 percent, despite the widespread loosening of admissions standards during this period. While the participation rate in higher education of Hispanics from middle socioeconomic backgrounds fell by about 10 percent, the rate for Hispanics of lower socioeconomic background fell by 22 percent. This is even more surprising, given that the high school dropout rate for Hispanics rose over the period, meaning that one would normally expect the high school "survivors" to be better qualified. This drastic change in participation over such a short period may have been occasioned by poorer academic preparation and thus lower eligibility for postsecondary education or less adequate financial resources, both factors associated with increasing disadvantage.

In summary, the evidence suggests that the proportion of at-risk students is high and increasing rapidly. Estimates derived from the various demographic analyses suggest that upward of one-third of all students in kindergarten through twelfth grade are educationally disadvantaged or at-risk (Levin 1986). When achievement is used as a criterion, it appears that the number of educationally at-risk students may be as high as 40 percent (Kennedy, Jung, and Orland 1986, pp. 62-63).

### *General Economic Implications*

The rising numbers of at-risk students and their continuing failure to succeed educationally will have important economic ramifications in at least three areas: (1) quality of the entry-level labor force; (2) the cost and quality of higher education; and (3) the cost of public services.

#### *Quality of Entry-Level Labor Force*

One consequence of the present educational status of at-risk students will be a serious deterioration in the quality of the labor force. As long as persons from such backgrounds were a small minority of the population, they could be absorbed by low-skill jobs or relegated to the status of unemployment without direct consequences for the economy.

High dropout rates, low test scores, and poor academic performance of a group that will become a larger and larger portion of the school population mean that a larger portion of the future labor force will be undereducated for available jobs. Here we refer not only to managerial, professional, and technical jobs, but even to the lower-level service jobs that are increasingly important in the U.S. economy (Levin and Rumberger 1987). Clerical workers, cashiers, and salesclerks all need basic skills in oral and written communications, the acquisition of which is hardly guaranteed in the schooling of the disadvantaged (National Academy of Sciences 1984). A U.S. government study in 1976 found that while 13 percent of all 17-year-olds were classified as functionally illiterate, the percentages of illiterates among Hispanics and blacks were 56 and 44, respectively (National Assessment of Educational Progress 1976). These and other test score results (Smith and O'Day 1991) suggest that many at-risk students are not acquiring the foundation that will enable them either to work productively in available jobs or benefit from training that would increase productivity and provide job mobility.

As at-risk populations become an increasing and even dominant share of the labor force, their inadequate educational preparation will be visited on the industries and states in which they work, affecting their competitive positions and our national economic status. Employers will suffer in terms of lagging productivity, higher training costs, and competitive disadvantages that will result in lost sales and profits. This problem will be especially severe for states with the largest growth in the disadvantaged population, such as California and Texas, where minorities already represent the majority of all students. It will also be most serious in those industries that depend upon this population for their labor needs. As a result, state and federal governments will suffer a declining tax base and a concomitant loss of tax revenues that could be used to fund improvements in education and other services.

### *Cost and Quality of Higher Education*

The implications for higher education are also severe. Even with high dropout rates, an increasing proportion of high school graduates will come from disadvantaged backgrounds. Without intervention at an early stage in their education, these students will leave high school

with serious learning deficits, which will prevent many of them from benefiting from current levels of instruction in colleges and universities.

High school graduation entitles the at-risk student to pursue postsecondary study in community colleges and many state universities. Even if increasing numbers of disadvantaged students gain college entry, their low achievement means that a high proportion of them will experience academic failure and leave without a degree. Among the group that entered college in 1972, only 13 percent of the Hispanics, 16 percent of the Native Americans, and 24 percent of the blacks completed a bachelor's degree by 1976, compared to 34 percent of the whites (Garibaldi 1986, p. 390). Although ultimate completion rates were higher for all groups, differences remained, and it took longer—on average—for minority students to complete their degrees.

One obvious response to this situation is to provide massive remedial functions to assist educationally disadvantaged students to reach levels where they can benefit from conventional instruction. According to a recent survey by the U.S. Department of Education in the early 1980s, one in every four freshmen was already enrolled in a remedial mathematics course, and one in every six in remedial reading (Abraham 1988). A similar study for fifteen southern states in 1986 found that about 36 percent of the freshmen in public institutions of higher education in those states were taking at least one remedial course in reading, writing, or mathematics (Abraham 1988).

High levels of college failures and dropouts and massive remedial interventions have costly consequences to both students and institutions. Large numbers of failures mean wasted time for students and wasted resources for colleges, not to mention the psychological costs to students of not being able to “make it.” Substantial remedial activities require additional faculty, and student programs take longer, with a greater cost in tuition and lost earnings during the extended training period required. Also, as a college or university takes on remedial functions, it is likely to approve some of these courses for degree credit, which results in a watering down of the overall curriculum and standards.

### *Cost of Public Services*

A final consequence of failing to address the challenge of at-risk students will be the rising costs of public services as more and more citizens are forced to rely upon public assistance and undereducated teens, and adults pursue illegal activities to fill idle time and obtain income. Many of the disadvantaged will continue to have difficulty finding regular jobs as adults, so their families will need to depend upon the availability of public assistance to survive. When one applies a teenage unemployment rate of 40 percent or so to a larger and larger group of school dropouts, there are likely to be increasing numbers of undereducated youth taking their activities to the streets rather than to the workplace.

Among a national sample of 19- to 23-year-olds in 1981, 72 percent of the jobless, 79 percent of those on public assistance, and 68 percent of those arrested in the previous year had scored below the average on the AFQT measure of basic skills (Berlin and Sum 1988, p. 29). Among 18- to 23-year-old males in 1981, those with a high school diploma had a 94 percent lower probability of arrest; and among girls aged 18 to 21 the high school graduates had a 54 percent lower probability of having a baby out of wedlock (Berlin and Sum 1988, p. 42).

A study of black women in their mid-thirties in 1982 found that each additional year of schooling was associated with a reduction of about 7 percent in the probability of receiving public assistance (Owens 1990). Moreover, participation in public assistance seems to be becoming even more education-dependent over time; education had twice the impact on the relation in 1982 as it did in 1967 (Owens 1990).

A projection of these outcomes on an expanding at-risk population will not only make the United States a less desirable place to live, but will increase the costs of police services and the criminal justice system. At the same time, the potential decline in economic activity created by an underprepared workforce will erode tax revenues. This situation will place additional pressures on the middle class to pay higher taxes for welfare and the system of criminal justice at the same time that the economy is flagging. As such it will exacerbate the political conflict between haves and have-nots, as taxpayers resist raising



taxes in the light of a faltering economy and mounting pressures for higher expenditures.

### ***Summary of General Economic Implications***

To fail to address the present and future educational needs of at-risk students will incur high social costs in terms of reduced productivity in the labor force and higher education as well as rising costs of public services. Education is not only linked to public assistance and criminal justice, it is also linked to health, status, and a variety of other important social outcomes (Haveman and Wolfe 1984). In fact, when all the identifiable outcomes associated with education are taken into account, it has been estimated that the overall return on education is twice as high as when only its effect on income is considered.

### **Benefit-cost Studies of Educational Investment**

The knowledge that economic and social benefits can be achieved by investing in at-risk student populations is not an adequate criterion for investment. Although such investments are likely to result in considerable benefits, there are also likely to be considerable costs. From an economic perspective, it is necessary to know whether benefits exceed costs and whether they exceed them by magnitudes equal to or greater than alternative social investments. In this section, we will review the results of benefit-cost studies of educational investments among those populations.

### ***Programs for Reducing High School Dropout Rates***

A number of economic studies have addressed the costs and benefits of programs for reducing the rate of high school dropouts. In a classic study on the subject, Weisbrod compared the impact of a St. Louis program designed to reduce the rate of dropouts among “dropout-prone” high school students with the rate of dropouts in a control group of similar students who did not have such a program (Weisbrod 1965). The dropout prevention program was associated with a high school completion rate that was about 7 percent higher than that of the control

group. Weisbrod estimated the cost for each of the additional graduates and contrasted it with the estimated income benefits of high school graduation for these students. He found that the costs of the program exceeded its benefits.

There are at least two reasons for believing that analyses of more recent programs would show stronger benefits. Weisbrod used 1959 census data to estimate the additional incomes of the graduates. Because of discrimination and other factors, the earnings of women and minorities were a much smaller portion of white male earnings some 30 years ago than they are today. Since the dropout-prone group included considerable numbers of females and minorities, the benefits were probably considerably understated relative to what would be obtained with more recent data. Further, the earnings advantages of high school graduates relative to dropouts have increased. Finally, the program that Weisbrod evaluated was initiated over thirty years ago when dropout prevention was in its infancy.

In contrast, a more recent study of dropout prevention found large net benefits (Stern, Dayton, Paik, and Weisberg 1989). This evaluation was based upon the success in reducing the number of dropouts at eleven academies created in public high schools in California. These academies comprised special programs or schools within the larger high school setting and provided vocational training for careers in which students stood a good chance of placement, as well as academic training. Students were given special attention from their teachers and the representatives of local employers. When students were matched with a similar group of students in regular school programs, it was estimated that the academies had saved 29 persons who would have been expected to drop out.

The marginal costs of the academy program, beyond those of the regular school program for all 327 students, were compared to benefits in terms of the additional earnings of the twenty-nine persons "saved" from dropping out. The overall benefits of the program were found to exceed overall costs by considerable amounts, the specifics depending upon which assumptions were used regarding benefits. However, the results also show that for some of the academies net benefits were positive and for others negative—that is, costs exceeded benefits. This suggests that a more refined evaluation of individual programs would

be useful in arriving at an understanding of which programs were the most promising on the basis of a benefit-cost analysis.

In contrast to studies of a single dropout program, Levin undertook a national study on the economic consequences of high school dropouts (Levin 1972). Here he calculated the additional lifetime earnings and tax revenues that would have been generated if the entire cohort of 25- to 34-year-old males in 1970 had graduated from high school. It was assumed that even if existing dropouts had graduated they would *not* have done as well as those who had actually graduated from high school. Thus, additional earnings of dropouts who would be induced to graduate were assumed to be only 75 percent of those of conventional high school graduates. But it was also assumed that a portion of the induced graduates would continue into higher education, with resulting additional earnings from that source as well.

The total loss of lifetime earnings for this group as a result of failure to complete at least high school was estimated at about \$237 billion. The additional cost for achieving this result was comprised of two parts: first, the cost of the additional years of schooling undertaken by members of the group; second, the cost of additional expenditures to prevent dropping out. It was assumed that it would have been necessary to increase annual schooling expenditures on those at-risk of dropping out by 50 percent a year for all of their elementary and secondary schooling to keep them in school until completion of high school. On this basis, it was estimated that the total costs of achieving at least high school graduation for all members of the cohort was about \$40 billion, producing a benefit of \$6.00 for each dollar of cost. The additional lifetime earnings would have generated about \$71 billion in government revenue or about \$1.75 in tax revenues for each dollar in cost. The study also estimated that inadequate education was contributing about \$6 billion a year to the costs of welfare and crime in 1970.

Robledo (1986) replicated this analysis more recently for that cohort of Texan ninth graders in 1982–83 who were projected to drop out before their anticipated graduation in 1986. They estimated the benefits of a dropout prevention program as those attributable to savings in public assistance, training and adult education, crime and incarceration, unemployment insurance and job placement, and as higher earnings associated with the additional number of high school graduates. Such benefits were calculated at \$17.5 billion, and the costs to elimi-

nate dropouts for this cohort were estimated at slightly less than \$2 billion or a ratio of \$9 in benefits for each dollar of costs. Estimates of additional tax revenues were 2.5 times greater than costs to the taxpayer.

Catterall (1987) did a similar type of analysis for persons who dropped out of the Los Angeles high school class of 1985. He found that because of high school dropouts, the Los Angeles class of 1985 was projected to generate over \$3 billion *less* in lifetime economic activity than if all of its members had graduated. In contrast, Catterall suggested that the cost of investing successfully in dropout reduction would be a mere fraction of this amount. Further, he found that Los Angeles was addressing the dropout problem with specific programs that were spending the equivalent of only about \$50 per dropout, or less than one-half of 1 percent of school spending, even though 40 percent of its students were not graduating.

### *Preschool and Higher Education*

There is evidence that even preschool investments in at-risk populations can reduce dropping out as well as provide other types of benefits. Barnett undertook a benefit-cost analysis of the Perry Preschool Project in Ypsilanti, Michigan (Barnett 1985). The Perry Preschool approach has been studied for two decades and has been used as a model for hundreds of preschools for disadvantaged students across the country, including the national Head Start program. Students who had been enrolled in the preschool project were followed until age 19. It was found that relative to a matched control group, enrollees in the project experienced better school achievement, educational placement, educational attainment, and employment. Monetary values for the benefits were calculated on the basis of the apparent effect of these advantages on the value of childcare during the programs; reduced school expenditures for remediation, special services, and grade repetition; reduced costs of crime, delinquency, and welfare; and higher earnings and employment.

It was found that the benefits exceeded the costs by a large margin under a wide range of assumptions. The one-year program showed benefits of \$7.00 for every dollar of costs, a benefit-cost ratio of about 7:1, and the two-year program showed a benefit-cost ratio of about

3.6:1 (Berrueta-Clement et al. 1984, p. 60). About 80 percent of the net benefits were received by taxpayers in the form of higher tax contributions and lower expenditures on education, crime, and welfare and by potential crime victims in the form of lower costs for property losses and injuries.

A study of benefits and costs for financial aid to stimulate participation in higher education for low-income students has also indicated high benefits relative to costs for government investment (St. John and Masten 1990). Here researchers compared tax revenues generated by the additional income produced by the higher levels of college participation among low-income students with the costs of financial aid that induced these higher enrollments. The net present value of additional tax revenues was four times as great as the cost of the aid program for students in the high school class of 1980. That is, from the perspective of the federal treasury, such programs had a benefit-cost ratio of 4:1.

These particular studies suggest that investments in at-risk students yield high returns to society. Such social investments are highly worthwhile in that their benefits exceed costs and that the margin by which they exceed costs is competitive with or superior to that of other highly productive investments. Of greatest importance is that higher tax revenues and reductions in the costs of social services more than compensate for the investments. In fact, in the case of the early childhood intervention program established by the Perry Preschool, most of the net benefits accrued to taxpayers (Barnett 1985).

### ***Summary of Benefit-Cost Results***

These benefit-cost results suggest that investments in the education of students at risk of undereducation are likely to have high payoffs to society. While each study can be questioned because of imperfect information and the need to make assumptions on both the cost and benefit sides of the equation, their overall pattern is remarkably consistent. This interpretation is buttressed by a recent study that found that increased investment in schooling quality among states was consistently associated with higher earnings of the adults who were schooled in those states, holding constant other influences (Card and Krueger 1992).

Estimated benefits for educational interventions tend to be about three to six times as high as estimated costs for at-risk students. According to Haveman and Wolfe (1984), the consideration of returns to human capital investments in the form of increases in earnings will capture only about half of the total returns. Thus most of these estimates are subject to understatement because they tend to be limited to the effects of educational investments on productivity and earnings and do not capture the value of reductions in the costs of health, public assistance, criminal justice, and a variety of other benefits. However, recent work suggests that cross-sectional estimates tend to overstate the benefits to human capital investments on behalf of the poor (Levin and Kelley 1991). All of the estimates are based upon cross-sectional evidence, with the exception of those based upon the preschool intervention. Since there is no direct evidence on the potential degree of overstatement or understatement of these results, a reasonable assumption is that they are offsetting and that the estimates are a reasonable first approximation of returns to investments on behalf of at-risk populations.

### **The Microeconomics of Educational Reform**

In the early 1980s, a rash of reports by national commissions and other groups were published recommending national educational reforms to improve economic competitiveness. The most important of these was *Nation at Risk*, produced by the National Commission on Excellence in Education (1983). Most of the recommendations of these reports addressed changes in secondary school programs for college-bound students by calling for more academic courses with more rigorous standards at that level. But at-risk students were not even meeting the “lower” standards that existed at that time and were dropping out in response to academic demands. The reports said almost nothing about improving school effectiveness prior to high school to make it possible for at-risk students to meet both existing and higher standards.

Why were the reports of these commissions silent about at-risk students? In response to this question, I undertook a study on the demography, educational outcomes, and social consequences of this group of

students (Levin 1986), the results of which are summarized in the first section of this paper. As an extension of that study I began to explore the production of schooling for this group of children (Levin 1988). Surprisingly, I found that the educational process in schools attended by these children was the *cause* of much of the problem rather than the solution.

That research found that at-risk students started behind other students and lagged farther behind the educational mainstream the longer that they were in school. And this problem did not appear to stem from a lack of teacher dedication, a charge that has often been made. Paradoxically, it occurred because compensatory programs for the disadvantaged are designed to slow down the instruction of such students, on the that assumption that at-risk students are less capable than others. Such students are placed into less demanding instructional settings—either by pulling them out of their regular classrooms or by adapting the regular classroom to their “needs”—and offering remedial or compensatory educational services. While this approach appears to be both rational and compassionate, it has exactly the opposite consequences.

First, it reduces learning expectations on the part of both the children and the educators assigned to teach them, and it stigmatizes both groups with a label of inferiority. Second, it slows down the learning process so that at-risk students fall farther and farther behind the mainstream, the longer that they are in school. Third, the approach to remediation is to provide repetitive practice of low-level basic exercises through endless drill and practice. This educational experience is empty and joyless because it fails to incorporate a rich curriculum, student involvement and discourse, interesting applications of concepts, active problem solving, and learning activities that build on the strengths of the students and their backgrounds. Finally, this remedial approach does not draw sufficiently upon parental and community resources, nor does it provide for the participation of school-based educators to influence the programs that they must implement.

The study concluded that an effective approach to educating the disadvantaged must be characterized by high expectations, deadlines by which such children will be performing in the educational mainstream, stimulating instructional programs, planning by the educational staff who will offer the program, and the use of all available resources, including the parents of the students. This approach should incorporate

a comprehensive set of strategies that mutually reinforce each other in creating an organizational push toward raising the achievement of students to the level that we expect in the mainstream.

A key element in this strategy is accelerated schools, which were designed by our Stanford Accelerated Schools Project to have exactly the opposite consequences by bringing at-risk students into the educational mainstream by the end of elementary school (Levin 1988). Our premise was very basic: at-risk students must learn at a *faster* rate than more privileged students—not at a slower rate that drags them farther and farther behind. What is required is an enrichment strategy rather than a remedial one.

I hypothesize that acceleration works as well for at-risk students as it has for their better prepared counterparts. One recent study assigned at-risk students at random to remedial, average, and honors classes in seventh-grade mathematics. At the end of the year, the at-risk students in the honors class—which provided pre-algebra instruction—outshone at-risk students in the other two groups (Peterson 1989). Similar results were found when at-risk students were provided with high-content instruction that emphasized thinking ability and decision making rather than basic skills (Knapp, Shields, and Turnbull 1992).

### *Institutionalizing Change*

Moving from an idea to institutional change is never an easy process. In order to develop a strategy for creating accelerated institutions, we found that we would have to make three major changes in U.S. schools, changes that were in deep conflict with current practices (Levin 1988). These changes have deep economic roots in that they require that: a clear objective function for the school (unity of purpose) be established; those with *de facto* property rights exercise those rights on behalf of children within a framework of incentives and accountability (school-site empowerment with responsibility); and an appropriate technology of schooling that will deliver results (building on strengths) be employed.

#### *Unity of Purpose*

Most schools that educate at-risk students seem to lack any central purpose. In economic terms they are firms without an objective func-



tion. In this framework, traditional schools are better understood as a composite of individuals and programs that seem largely disparate and piecemeal with no central vision. Planning, implementation, and evaluation are typically done independently and by different groups. Teachers tend to see their responsibilities extending no farther than maintaining good practices in self-contained classrooms, while remedial specialists work in isolation from each other and the regular school program.

Acceleration requires the establishment and pursuit of a common vision that serves as a focal point for the efforts of parents, teachers, staff, and students. The vision of an accelerated school must focus on bringing children into the mainstream, where they can more fully benefit from school experiences and opportunities. The development of this vision requires the combined efforts and commitment of all parties involved. Unity of purpose refers to both a vision or dream of what the school can be and an action plan that will get the school there.

#### *School-site Empowerment*

Existing schools for at-risk students are largely dominated by decisions made by entities far removed from the school site and classroom. Federal and state governments and central offices of school districts have established a compendium of rules, regulations, directives, policies, laws, guidelines, reporting requirements, and “approved” instructional materials that serve to stifle educational decisions and initiative at local school sites. It is little wonder that administrators, teachers, parents, and students tend to blame factors “beyond their control” for the poor educational outcomes of at-risk students. And, as the historical record has shown, compliance with these policies ensures failure, not success.

Accelerated schools are based on the concept of internal responsibility, in which major decisions that will determine educational outcomes are made by establishing a collective sense of efficacy and applying the skills and organization to undertake the changes that are necessary. If the school is to achieve its vision of educational success, administrators, teachers, other staff, parents, and students must participate in making informed decisions regarding school activities. Important areas of school-site decisions include some or all of the following: curriculum, instructional strategies, instructional materials, personnel, and

allocation of resources inside of the school. Such decision making requires active support from the district's central office in the form of information, technical assistance, staff development, and evaluation, as well as an overall system of accountability in which the school is rewarded according to its performance.

### *Building on Strengths*

Schools with large numbers of at-risk students tend to highlight the weaknesses of their students, staff, funding, administrative support, and so on, as an explanation for poor performance. A particularly heavy emphasis is placed on the litany of what is wrong with at-risk students and their parents. But good pedagogy begins with the strengths and experiences of participants and builds on those strengths rather than dwelling on the weaknesses. This means that schools must shift from a technology of production that has shown consistent failure to one that has shown superior results.

Accelerated schools seek out the strengths of their students and other participants and use those strengths as foundations on which to build their programs. In this respect, students are treated as gifted and talented students, where strengths are identified which are then used as a basis for providing enrichment and acceleration. The strengths of at-risk students are often overlooked because they are not as obvious as those of middle-class students. But our research has shown that at-risk children bring assets that can be used to accelerate the learning process. These include interest and curiosity in oral and artistic expression, ability to learn through manipulation of appropriate learning materials and interesting applications, the capability to delve eagerly into intrinsically interesting tasks, and a capacity for learning to write prior to mastering reading skills.

The process of building on strengths is not limited to students. Accelerated schools also build on the strengths of parents, teachers, and other school staff. Parents and teachers are largely underutilized resources in most schools. Because they want their children to succeed, parents can be powerful allies if they are placed in productive roles and provided with the skills to work with their children. Teachers bring gifts of insight, intuition, and organizational acumen to the instructional process, gifts often untapped by the mechanical curricula so typical of remedial programs. Accelerated schools acknowledge the gifts

of teachers and parents and build on those strengths in fulfilling their accelerated visions.

### ***Combining the Principles***

An accelerated school is not just a conventional school with new principles or special programs grafted onto it. It is a dynamic environment in which the entire school and its operations are transformed. The emphasis is on the school as a whole, rather than on a particular grade, curriculum, staff development approach, or other limited strategies. The goal is high academic achievement for *all* students.

The three principles of unity of purpose, site-based empowerment, and building on strengths are woven together in virtually all the activities of the accelerated school. The school is governed by its staff, students, and parents, and priorities are pursued by task groups that follow a systematic inquiry process for problem solving, implementation, and evaluation.

Accelerated schools use a heavily language-based approach across all subjects, even mathematics, with an early introduction to writing and reading for meaning. Curricula reflect a sense of high expectations and a tie to the students' cultures. Active learning experiences are provided through independent projects, problem solving, and utilizing new knowledge and skills in concrete situations. By applying academic concepts and skills to real-life problems and events, students see the usefulness of what they are learning.

The organization of accelerated schools allows for a broad range of participants and a collaborative approach in which students' families play a central role. Indeed, success depends on parents working with staff and students, helping to make school decisions by participating in the decision bodies of the school.

### ***Some Results of Accelerated Schools***

The first two accelerated pilot schools were established in 1987 and have been operating for five years. The total transition from a traditional to an accelerated school takes about six years. Since that time approximately three hundred additional schools, most of which are elementary schools, with a recent extension to middle schools, have initi-

ated the transition process. We have found that the transformation to an accelerated school can be done primarily by reallocating existing resources to free up staff time and make other provisions for staff development and accelerated school activities. To my knowledge, none of these schools has obtained additional funding beyond even 1 percent of their budgets to pursue accelerated school activities. We believe that the basic transformation to and operation of an accelerated school can be done largely within existing resources. It should be noted that most of the other national educational reforms that have shown success require an additional cost of about \$1,000 per student, in comparison with about \$20 to \$30 per student for accelerated schools.

Early results have been extremely promising. The Daniel Webster School in San Francisco enrolls a student body that is over 90 percent minority and over 80 percent on public assistance. It was one of the bottom elementary schools in San Francisco in 1987, ranking sixty-fifth out of sixty-nine schools with test scores in mathematics. By 1991 the mathematics scores had risen to twenty-third in San Francisco, among the top third of all schools. Students were performing above grade level in mathematics at every grade. Test score gains in all three areas tested—reading, language, and mathematics—were the highest of all the schools in San Francisco. The Daniel Webster School was the only school in San Francisco in which both black and Spanish-surname students made more than a year of academic progress in one academic year.

The Hollibrook Elementary School in Houston enrolls over one thousand students, many of them recently arrived immigrants from Central and South America. About 90 percent of the students are from families below the poverty line. In 1988 the school's fifth graders were about two years behind grade level in reading and language arts and almost half a year behind grade level in mathematics. By the spring of 1991 Hollibrook fifth graders were performing at grade level in all subjects and one year above grade level in mathematics (McCarthy and Still 1993).

Most of the accelerated schools have been established in the last two years, so it is too early for them to have completed their transformation. Nevertheless, the early results for these schools are also impressive, with improved attendance, parent participation, test scores, student projects, and reduced behavior problems and vandalism.

Investment in the education of at-risk students has a large payoff, and we have the wherewithal to use that investment wisely in accelerated schools. Indeed, those characteristics that make for an efficient firm can be applied to schools to improve their efficiency substantially. Given this evidence, it is surprising that many economists immediately resort to a market approach in looking for economic strategies to improve the education of at-risk students (Friedman 1962; Levin 1991). Typically, they cite the work of Chubb and Moe (1990) or Hoffer, Greeley, and Coleman (1987), which was reanalyzed by Willms (1987), who found that students in Catholic schools were able to achieve as much as a one-tenth of a standard deviation advantage over similar students in public schools. But accelerated schools have shown achievement gains of 1.5 standard deviations, or fifteen times that large, without resorting to a change in educational finance to vouchers or other systems that would require public funds for private schools. No comparison between private and public schools has come close to finding this effect.

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