

Academic Work and Educational Excellence: Raising Student Productivity

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Read casually or passively, this collection of essays could easily be mistaken for just another contingent in the perennial humdrum parade of complaints, nostrums, and aspirations concerning American public education. A wide-awake and critical attitude, however, can make reading this book—this book in particular—disquieting as well as intensely thought-provoking. Although I am generally disinclined to mark up a book, by the time I had finished reading this one, many of its pages were replete with my underlinings and marginal comments. Some of the essays abound with quotable statements, many because they seem pithily sound, and quite a few others because they seem such patent educationist Pollyanna.

One example is the notion, repeated several times in various chapters, that any pupil can learn anything if only given enough time. This seems to be an unqualified and overextended interpretation of the systematic relation between time-on-task and amount learned, as demonstrated in a rather limited variety of psychological laboratory learning experiments that have minimized such factors as developmental readiness, individual differences, and the importance of insight or understanding in the acquisition of intellectual skills and conceptual knowledge—the sine qua non of academic achievement. In view of the education establishment's proclivity for solutions

that too often turn out to be unfruitful fads fashioned from overinterpretation of perhaps scientifically valid but narrowly limited psychological discoveries, critical caution, if not outright skepticism, is in order when psychological principles are generalized to classroom applications.

This book, sponsored by the National Society for the Study of Education (NSSE), consists of 10 papers selected from among some 40 commissioned by the National Commission on Excellence in Education as background information in preparing its recent widely publicized report, *A Nation at Risk: The Imperative for Educational Reform*. The editors have written the introductory and final chapters specially for this volume. A good way to approach the book is to read these two chapters first, as they present an excellent overview of the problems, concepts, and recommendations that are the gist of *A Nation at Risk* (henceforth referred to as *At Risk*). The chapters by the editors, incidentally, pretty much contain the essence of the whole book, but without all the detail and literature citations of the other 10 more specialized papers, which deal with the social context of the Commission's concerns (Adelson & Zimilies) and with the educational goals of elementary (Good & Ward), secondary (Cusick), and college education (Neumann). Four chapters explicate theories of academic work (Doyle), motivation to learn (Stipek),

alternative conceptions of intelligence and their implications for education (Wagner & Sternberg), and achievement as a function of the quality of student effort (Pace).

At Risk is a dramatic expression of the dawning realization by the nation's leaders in government, industry, the military, and education that the level of educated intelligence of a nation is an essential determining factor in its status in the international community—an idea first pronounced some 200 years ago by the economist Adam Smith. The developed intelligence of a nation's population is probably even more important than its natural resources for its material prosperity, the quality of life of its citizens, and its political freedom and stability. Hence a nation deficient in developed intelligence, as compared with other nations, is considered a nation at risk.

It is noteworthy that the Commission's report comes just 25 years after the U.S. government's launching of the greatest educational experimentation ever seen in the history of the world. The results have turned out to be disappointing, mainly because expectations were based on the false theory that individual differences in scholastic aptitude have more superficial causes than have most other human characteristics. Causes attributed exclusively to various economic, social, and cultural factors, and the effects of these factors on scholastic achievement, it was believed, could be wiped out in a generation by social programs and educational and psychological manipulations. A hard and critical examination of the results of the 25 years of effort along these lines reveals virtually nothing that would encourage optimism. The occasional exaggerated claims of success are generally exempted from critical scrutiny, probably because people tend to gloss over their disappointment at failed expectations. It can be claimed, however, that the main focus of effort so far has been directed at the elementary grades, and that the reform of secondary education has been relatively neglected. The Commission's concerns and recommendations now are primarily directed at secondary education.

The grave concerns voiced by the government Commission that wrote *At Risk*

stem from the decline in academic achievement reflected in the lowering SAT scores over the past 20 years, as well as the poor showing of American secondary students in international comparisons of scholastic achievement. American students lag considerably behind those in Japan and Sweden, for example. In certain academic subjects American students show achievement levels closer to those of the Third World than to those of other highly industrialized countries. Rates of functional illiteracy are much lower in other industrialized countries than in the United States. Another concern of the Commission's report is the increase in crime—assault, robbery, and vandalism—in the schools.

Blamed for the comparatively low achievement of American students is the decline over the past two or three decades in high schools' academic requirements and standards for graduation and college admission. The high school curriculum is claimed to be academically watered down, diluted by intellectually undemanding electives to accommodate the lower rungs of academic talent and motivation. Fewer than one-third of high school students are enrolled in an academic track. Also deplored by the Commission is the quality of the nation's teachers, claimed to be disproportionately drawn from the lower half of the distribution of SAT scores and exposed to an academically weak college curriculum as education majors. These are just some of the alarming complaints aired in this book.

One might wish that a more questioning attitude were taken toward the Commission's diagnosis of the problems. The diagnosis is focused almost exclusively on the schools. One wonders, for example, if the relatively poor showing of American students in the international comparisons of scholastic achievement is mainly attributable to the comparative laxness of standards and academic curricula in our schools or if it really reflects other factors that are beyond the schools' traditional sphere of control. Much is made of the high levels of performance of students in Japan, as if to support the assumption that the Japanese schools per se are exceptionally effective. Yet American-born Asian

(Japanese and Chinese) students in American schools are also conspicuously high achievers in academic programs. The per capita ratio of Asian to non-Asian high school graduates who, on the basis of SAT scores and high school grades in academic subjects, can qualify for admission to the University of California, for example, is no less than 4 to 1, despite the fact that the Asians and non-Asians have attended the same California public schools.

Evidently there are population differences, whatever their causes, that tend to prevail over the direct influence of the educational system. Such observations should sound a note of caution in the interpretation of international comparisons of academic achievement. These comparisons figure prominently in the Commission's diagnosis of America's educational ills. Although international comparisons can be dramatic, their interpretation is highly problematic because of so many uncontrolled variables. The directionality of cause and effect in educational practices is so uncertain that it is risky to infer that students in country X achieve at a higher level academically than their age-mates in country Y simply because of particular differences in the educational systems of the two countries.

Much more certain knowledge could be secured by studying differences between various schools within the United States—schools that serve populations that can be reasonably equated on educationally relevant background variables. This would be especially true if clearly defined instructional programs could be experimentally varied across the contrasted schools. Would the Japanese model of schooling, for example, result in the same level of achievement by non-Asian pupils in a California school system that we find in their age peers in Japan? The outcome of such a study would be important news indeed.

One of the book's most penetrating chapters, by Joseph Adelson, forthrightly recognizes that among the differences between education in most other countries and the American educational system, especially in recent decades, is the latter's "egalitarian obsession." It fosters the wishful thought that individual differences in learner aptitudes can be impor-

tantly diminished, nullified, or trivialized by some educational or psychological means. The result has been a failure to face up fully to the nature of individual differences in the factors most highly related to academic performance.

The popular aspiration for equity in achievement as well as in opportunity has evidently taken its toll on both the mean and variance of scholastic performance in America's schools since about 1960. An important lesson to be learned from the extensive research on instruction during this period is the apparently inexorable connection between mean and variance: Whatever instructional method increases the mean level of performance also increases the variance, or individual differences. Educators now have a name for it: the "Matthew Effect," from the familiar lines in the Gospel According to St. Matthew (13.12): "For whosoever hath, to him shall be given, and he shall have more abundance: but whosoever hath not, from him shall be taken away even that he hath." This, essentially, is the dilemma of our egalitarian obsession in education.

The values implied by the egalitarian obsession are completely taken for granted by the editors and by most of the authors of this book. We read, "Quality education is an academic education. . . . A quality academic education is necessary and possible for all children" (pp. 16–17). For such pronouncements to be taken literally, the generally misunderstood meaning of the term "academic education" would have to be drastically redefined.

The problems deplored in *At Risk* could actually have arisen, in part, from our philosophy of a single type of educational system, from grades K through 12, for an entire population—a population that is more diverse with respect to measurable scholastic aptitude than the populations of Japan or most European countries, which nevertheless typically offer more diversified types of schooling at the secondary level than has ever been seen in the United States. To deplore the fact that scarcely one-third of American high school seniors are enrolled in an academic track may even be based on an unrealistic expectation, unless we all are willing to downgrade our traditional conception of

academic standards. (Note that an IQ of only 105 is the cut-off for the top one-third of the general population's IQ distribution.) An important aim of the schools, that no one today would question, is that all students who *should* be in the academic track by virtue of their aptitude and motivation should all have equal opportunity to be in the academic track.

The At Risk Commission's recommended remedies, whether well-founded or not, are never really critically examined by the authors of this book. The recommendations are essentially these two injunctions: for schools, *demand more*; for pupils, *work harder*. Specifically, "Five New Basics" are recommended for virtually all students in the 4-year high school curriculum: 4 years of English, 3 years each of mathematics, science, and social studies, and 6 months of computer science.

We are told emphatically that content must not be thinned to compensate for differential learning rates or initial disadvantage, whatever their causes.

Will this philosophy realistically work if the traditionally accepted meaning of these requirements is maintained? Or will such apparently demanding academic requirements constitute a graded series of intellectual hurdles that would increase frustration, failure, and drop-out rates in a large segment of the school population? Fifty percent of the school population, remember, is either above the 75th or below the 25th percentile in normally distributed scholastic aptitude. Even with the present academic requirements, the achievement gap between the upper and lower quartiles is striking indeed by the last year of high school.

By what method can the beefed-up academic requirements and stricter standards presumably be met successfully by all students at every level of aptitude? The basic idea is time plus effort spent in academic studies. This simple faith is best expressed in the editors' own words:

... in a power test slow performers may achieve as much as fast ones; it just takes them longer. Similarly, if students with content deficiencies have time to recoup the missing content, they may learn as quickly and as much as students who are initially more knowledgeable. In both

instances, time is a proxy for effort and for opportunity to learn, and, as such, may substitute for ability and prior experience, thereby serving to equalize the otherwise unequal results owing to prior advantage. (p. 8)

... hard work in school is the great equalizer; it can substitute for talent. (p. 302)

Such statements will be recognized by educators as the oversold notion of "mastery learning," which is proposed as a way around the troublesome problem of individual differences in aptitude. This problem perpetually thwarts all manner of instructional efforts aimed at the attainment of equity in scholastic performance.

Let's face it, educationist pronouncements such as those quoted above, as well as much of the wishful thinking about the equalizing power of "mastery learning," completely ignore the findings of much solid research on the nature of individual differences in human abilities, learning, and motivation. For example, the above-quoted statements about speed and power tests convey a false impression. The fact is that when persons are given a test under speeded conditions and also as a "power" test without time limit, their scores maintain approximately the same rank order under the two conditions, and, barring a "ceiling effect" on the range of item difficulty, the variance among persons may even be increased. However much we may dislike the idea, research evidence indicates a close connection between speed and power in mental tasks. Moreover, persons of lesser ability simply do not solve problems at the same level of complexity as do those of greater ability, regardless of the amount of time available. Scores on the Raven Matrices, a graduated nonverbal power test of reasoning ability, for example, show a wide range of individual differences even when all subjects are urged (and paid) to take all the time they need to attempt every item in the test.

Also, the quoted notion that "hard work in school is the great equalizer [and] can substitute for talent" ignores a basic principle of reinforcement. Self-perceived success in performing a task acts as a positive reinforcer, and the conscious effort that makes for the success is an im-

portant aspect of the behavior that is reinforced. The more highly talented have more successes at intellectual tasks per unit of time and effort, and hence receive more positive reinforcements, which in turn makes for greater effort (often perceived as "motivation") in intellectual pursuits. Teachers who have worked with the "academically gifted" have noticed that they put more time and effort into intellectual pursuits and appear more motivated than do pupils in the lower half of the distribution of aptitude.

One misses in this book any thorough and critical discussion of the viewpoint now recognized by many researchers on the nature of individual differences in intelligence and learning—that intelligence, whatever it is, is not something that anyone yet knows how to teach. It is most probably not even something that is learned. Individual differences in it are little affected by a great variety of educational treatments that have been tried since at least the time of Itard and Binet at the turn of the century. In this respect, intelligence is like talent. Who claims to teach talent? Teachers in fields where talent is crucial only *select* for talent, and then work to develop it through example and training. If, say, musical talent could be taught, one would not need to select for it, but could simply take any children at random and train them all up to be professional-caliber musicians. The same thing can be said about athletic talent. In this same fundamental respect, academic aptitude is essentially no different, although some educational theorists seem to draw the line on this view where it comes to academic aptitude.

Unfortunately, many writers about educational problems seem unaware of the actual research that may bolster or contradict their claims and prescriptions. True, it is often embarrassing to discover how little "hard knowledge" exists that can be directly brought to bear on some of the problems. Hence beliefs and hopes and a good deal of wishful thinking tend to guide action more than does knowledge that can be called scientific. In this sense, education resembles politics more than it resembles such exemplaries of applied science as engineering and medicine.

What would be welcome now, as an NSSE-sponsored sequel to the present book, is a companion volume of truly critical analysis, in light of all the relevant research, of the key assumptions, diagnoses, and recommendations of the government's *At Risk* report, toward which the present collection of essays does not purport, and was never intended, to assume a critical stance. The present book, along with *At Risk* and perhaps many of the other position papers that informed the Commission, should afford a good springboard for more critical examination of both the supposed and real problems of public education.

Published by McCutchan, 1986.

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