

## Learning about Learning: A Key to Curriculum Improvement

AS USUAL, we whose lives are devoted to school curriculum are up to our necks in a sea of criticism. This is a normal state of health. Every period of dynamism and progress has found education a center of controversy. In times of danger people recognize the importance of education and cry for its improvement. And every thoughtful person, regardless of his own schooling, is likely to hold firm convictions on the indispensable curriculum and the best ways to teach.

This condition, accentuated as it is today, can be a help to us. Criticism from friend and enemy alike encourages us to reexamine what we are doing, and to speed up improvement. This speedup is needed today as never before. We have a tough task.

Two factors seem especially significant: One is the growth of our reservoir of established knowledge. The other is the influence of the international scene.

Through research and scholarship, the sum of our factual knowledge is growing at an ever-increasing pace. For each person who but a few decades ago was devoting his life to a search after facts, there are a thousand so engaged today. Our fund of verified knowledge doubles and redoubles in ever shorter periods of time. It is probably now doubling in a time interval lying somewhere between a decade and a generation. The choice of the particular knowledges to be taught thus becomes ever more difficult. The need for greater efficiency in our teach-

ing becomes ever more obvious, if we are to teach even a fraction of what is needed by educated youth today. We must help young people to learn more during each hour of school.

The second significant factor is that for the first time in American history "our side" is outnumbered by those inimical to our way of life. From the Revolutionary War to World War II the effectives brought to bear by the American side (or by the North in the War of the 1860's) outnumbered the opposition. The more numerous side always won the struggle. This comfortable condition no longer exists. We are confronted by a vast, intelligent and ruthless enemy apparently dedicated to our destruction. The Communist-controlled population today greatly outnumbers the population of those nations committed to anti-Communism. The number of effectives that the former can bring to bear vastly exceeds our manpower potential.

One obvious implication is that if we are to survive we must use our various potentialities to the full—especially our potential brainpower. The role of brainpower—of "eggheads"—in our survival has been adequately dramatized in the post-sputnik panic. Everyone now admits its importance, albeit perhaps a bit grudgingly. Our schools are the institution whose task it is to identify and cultivate the brainpower of each generation. Today this purpose is accentuated. And we are uncomfortably conscious of the fact that the Communist powers have

long been aware of the vital role schools and education will play in determining the future of the world. They take education very seriously.

We in America must help each child or youth to see that he has a patriotic obligation to develop his own capacities to the full. He must see the need to study hard and work hard. As he makes himself most valuable to our society, he strengthens our society correspondingly. If he is of college caliber, he should attend college and take the difficult subjects. Selfish ambition and patriotic duty for once coincide. "Getting ahead in the world," in this sense, contributes to our survival. Regardless of the occupation a youth may later pursue, if it is one that challenges his full abilities and if he is doing his best in it, he is strengthening America.

The task confronting children and youth in our schools, then, is clear: study hard, work hard, aim high. Our own task is more complex. We must be sure that our teaching methods are the most efficient and that the knowledges, skills and attitudes we impart are those having the greatest value. We no longer have a comfortable safety margin for dallying and for error. Each hour is precious.

What we teach—curriculum—is crucial as never before. What social studies, for example, are we teaching? What are we teaching about the people of Africa, India and the rest of Asia, who are not yet committed toward or against Communism? They hold the balance of power and may well determine our future.

How well are we helping each child's innate creativeness to flourish? Inventiveness in all areas is the key to our progress and survival.

Are we trying to select from the unimagined millions of scientific facts those most essential for youth to master? Or

are we primarily using these facts as resources for teaching skills and attitudes?

What of communication? Clear communication and clear thought are apparently inextricable.

What are the emerging needs in foreign language as we become more dependent upon people speaking languages of which we have not even heard?

### Teaching Efficiency

The emerging problems of curriculum choice are clear and tempting. An equally compelling and more immediate concern in this journal, however, is with ways to increase our teaching efficiency.

We can anticipate that curricular demands will continue to grow as we grow in knowledge and in national need. At the same time, our youth will need a higher proficiency in basic skills. Yet the number of hours available for effective learning is unlikely to increase appreciably. This seems to pose a difficult dilemma.

Our most hopeful clue to the greatly increased teaching efficiency we need lies in an increased understanding of the learning process. Concern with the learning process is as old as education itself. The amazing success of Aristotle and other early Greek teachers in helping others learn continues to impress us across the centuries. To quote Edith Hamilton,<sup>1</sup>

We (in America) need the challenge of the city . . . wherein for centuries one genius after another grew up. Geniuses are not produced by spending money. We need the challenge of the way the Greeks were educated. They fixed their minds on the individual. . . . The Athenians in their dangerous world needed to be a nation of independent men who could take responsi-

<sup>1</sup> "The Lessons of the Past." *Saturday Evening Post*, September 27, 1958. p. 116-17.

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bility, and they taught their children accordingly. . . . To them education was by its very nature an individual matter. . . .

As time went by, other great teachers left their imprint. Here and there men sought to understand the process by which humans learn. But not until our own century could methods of studying this process go much beyond mere observation and introspection. The trouble with introspection appeared to be that when one was learning most intensely there was no part of his mind left to stand off and watch what was happening.

Experimental psychologists such as Pavlov and Thorndike carried this issue into the laboratory. Their work led to the many insights related to connectionism and conditioning. This in turn led to the excesses characterizing the drill theory of learning. In pure form, children were treated almost as machines or automatons, incapable of creative thought. The research underlying this approach to teaching in its efforts to eliminate everything from the situation but the two stimuli being tested (e.g., bell and meat), had so distorted and oversimplified the

learning process as to bear little resemblance to a complex classroom situation.

The inevitable reaction to these distortions took form in the various ideas associated with field theories of learning. For the past quarter of a century the various forms of organismic psychology or field theory have grown in influence, especially among those affiliated with ASCD. This is true despite the fact that any "systematic field theory of learning has yet to be formulated."<sup>2</sup>

Many exceedingly useful understandings of the learning process have grown out of efforts centering in a field theory point of view. The meaning approach that characterizes present-day arithmetic teaching is one direct outgrowth. Some of the many other insights that should guide our instruction are gathered within this issue of *Educational Leadership*.

A final reminder of how vast is our basic ignorance of the physiology of learning—what actually happens within the brain when we learn—is provided by the work of various neural surgeons. For years they have been exploring neural pathways within the many parts of brains exposed during surgery. Electrical stimulation of particular neurons has brought surprising results. The fact that such crude exploration as this should be "frontier research" is a measure of the scantiness of our knowledge. To paraphrase Oppenheimer, in this area, too, we have mere patches of knowledge scattered over a vast field of ignorance. The next decade should bring a great expansion in our understanding of the learning process.

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<sup>2</sup> William A. Brownell. "The Study and Guidance of Learning in Children." *Education 2000 AD*. Edited by C. W. Hunnicutt. Syracuse: Syracuse University Press, 1956. p. 130.

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