

# Overview

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Few subjects are more fascinating than the human mind. Scientists are beginning to solve some of its mysteries, but a recent television special on the subject<sup>1</sup> stressed how much is not yet understood—why do we dream? how does hypnosis block pain? what happens in the brain when we “learn” something?

Without answers to intriguing questions like these, teachers keep trying—often with methods that are centuries old—to develop the minds of their students. We can't say for sure what teachers should be doing, but we do have some clues.

For example, the National Assessment of Educational Progress is beginning to do what it was designed to do: provide census-like data about what students are learning or not learning in school. Results of the second mathematics assessment show that students are alarmingly weak in problem-solving ability (See report by Carpenter and others, p. 562). President Shirley Hill of the National Council of Teachers of Mathematics told a Congressional subcommittee that public pressure for high test scores was causing schools to concentrate on drill and rote learning of formulas. Students were not being taught to think.<sup>2</sup>

Several of the articles in this issue deal with problem solving in one way or another. Arthur Whimbey (p. 560) describes characteristics of successful problem solvers and reports programs from early childhood to medical school designed to help students improve their skills. B. Edward Shlesinger, Jr. (p. 572), an inventor himself

tells how he teaches students of all ages a step-by-step process for inventing solutions to problems.

Creative thinking is a worthy goal, but it is different from cognitive development, and that brings us back to the mysteries of the mind. Two articles (p. 566 and p. 569) describe the work of Reuven Feuerstein (ROO-vun FOY-ur-stine). When someone first told me about his *Instrumental Enrichment* program, I didn't pay much attention, because I didn't understand the title and I thought it was just one more program competing for recognition in the marketplace. The more I learned about it, though, the more interested I became because it represents a revolution in thinking about human capabilities.

Most of us consider intelligence a stable quality; some people are brighter than others and that's all there is to it. We may concede that some students could learn to make better use of the intelligence they have—but not that they could actually become more intelligent. Feuerstein says they can become more intelligent, and he cites examples from his work. He talks about “cognitive modifiability,” which means that what we call intelligence is largely *learned* through what he calls “mediation,” which is a form of teaching.

If so, we face new questions about what schools should do. Traditionally they performed a sorting and selecting function that continues to be reflected in most grading and promotion policies. In recent decades some schools tried to moderate the sorting function by making provisions for individ-

ual differences, including differences in intellectual abilities. In the words of Lorin Anderson, enlightened educators have attempted “to modify the institutional setting so that students with a variety of abilities can succeed.”<sup>3</sup>

The work of Feuerstein and other developmental psychologists suggests that educators can do more; perhaps even reduce the disparity in cognitive ability of students. Michael Begab, head of the Mental Retardation Centers of the National Institute of Child Health and Human Development, says, “It is the learner, rather than the material to be learned, that can and should be modified.”<sup>4</sup>

The implications are staggering. Educators have enough trouble teaching basic skills; most are not prepared to accept accountability for making students more intelligent. Nevertheless, that is exactly what Feuerstein and others say is already possible. We are sure to learn more about cognitive development in the years ahead. In the meantime, we should recognize that thinking skills are the most basic of all.

<sup>1</sup> PBS, “Mysteries of the Mind,” National Geographic special, 4 February 1980.

<sup>2</sup> Statement at hearings of the Subcommittee on Elementary, Secondary, and Vocational Education of the House Committee on Education and Labor, October 23, 1979.

<sup>3</sup> Lorin Anderson, “Adaptive Education,” *Educational Leadership* 37 (November 1979): 141.

<sup>4</sup> Michael Begab, Introduction to *Instrumental Enrichment*, by Reuven Feuerstein with others (Baltimore: University Park Press, 1980): xi.

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