EDUCATION

Toward Rational Education Policy

Robert L. DeHaan

In his recent State of the Union message, President Bush called upon the United States to bolster mathematics and science education as a means of nurturing corporate innovation. With his plea, he lent urgency to a complex and multifaceted debate over how best to achieve such improvements. That debate—currently raging among academics in fields as dissimilar as cognitive psychology, social change theory, and education research (1–4)—is the controversy that Michael Feuer refers to in Moderating the Debate. The author developed this small, highly readable book from the 2004–05 Burton and Inglis Lectures that he delivered at the Harvard Graduate School of Education. Feuer, a leading education research and policy analyst and executive director of the Division of Behavioral and Social Sciences and Education at the U.S. National Research Council, focuses on “a mysterious gap in applied social science.” Cognitive psychology, he notes, has been central to modern theories of teaching and learning. Indeed, many of the interesting reforms currently being applied in the teaching of reading, mathematics, history, and science are motivated largely by recent cognitive research findings on how people integrate new information with their prior knowledge, how they solve problems, and how they mix learning and memory with discovery and invention (5).

Feuer argues forcefully that education policy—including theories of school organization and reform as well as strategies for relevant and useful education research—should benefit from these advances in cognitive science. “It is something of a mystery…” he notes, “that the cognitive revolution has barely touched education policy and the organization of schooling.” Given the success of the cognitive revolution as, on the one hand, a tool for understanding human learning and, on the other, for offering insights into organizational complexity and the implicit cognitive demands these complexities impose on educators and policy-makers. He emphasizes the view that rational decision-making is a function both of the mental and technological resources available to the decision-makers and of the objective complexity of the decision problem to be solved. Education policy—including the current hot debates (4) over standards of evidence, research methodologies, and how to define “scientific” research in education—would be fertile ground for a cognitively inspired theory of action, by which Feuer means “a framework that connects observation to predictions and lays a foundation for reasonable policy goals.” Such a theory, he believes, would apply principles of cognitive science and procedural rationality to develop reasonable and realistic school reform strategies.

An important element of Feuer’s argument about procedural rationality, which he fears may seem counterintuitive, is that “science is furthered, not hindered, by the acknowledgment of complexity and the admission of bounded human problem-solving capacity.” Scientific inquiry into questions as complex as those underlying problems of education policy and research methods must be understood to require an incremental process of knowledge accumulation involving the combination of multiple types of data, rather than a single method that promises definitive answers to well-defined causal questions. Procedural rationality, to the author, means something like pragmatism, or “doing the smartest thing possible under the very real constraints of time, resources, and context.”

After reviewing the contributions of cognitive science to theories of human performance, learning, and assessment, Feuer describes a select few of the many recent developments in organization theory and policy analysis in domains other than education that derive from the cognitive view of rational decision-making. To explore how theories of organization, modified by new cognitive principles, might shed light on critical issues in the education debate, the author (trained as an economist) takes the reader through a “brief digression” to review neoclassical and cognitive economic models. Building on Herbert Simon’s notion of “procedural rationality” (6), Feuer’s analysis of major education policy and reform efforts of the latter half of the 20th century focuses on organizational complexities and the implicit cognitive demands these complexities impose on educators and policy-makers. Feuer’s exploration of the intersections among cognitive science, economic theory, and education policy is informative, novel, and full of intriguing hints at how to channel the education reform debate in fruitful new directions. But while the author’s evident erudition and analytical powers might lead the reader to expect a grand formulation of a new cognitive framework to undergird education policy, that is not his intent. The “moderate proposal” he offers in the last chapter includes a request that researchers and policy-makers alike “lower their rhetorical and political thermostats.” His is a call for procedural rationality, for avoiding inflated goals defined extravagantly either for methodological purity or for dramatic effect. Feuer stresses the need for greater communication and cooperation, and he suggests creating a watchdog group to evaluate reform proposals in terms of criteria such as intended and unintended consequences, likely costs, validity of anticipated effects on different populations, reasonableness of timelines, etc. Above all, researchers and policy-makers must “be wary of defining acceptable evidence too narrowly and setting evidentiary standards too high.” It makes more sense to seek incrementally better solutions to problems of the organization, production, and use of knowledge for improving educational policy than to wait for the best solutions. Let not the best be the enemy of the better.

References and Notes


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MATHEMATICS AND ART

CT Scans vs. X-rays

Marjorie Senechal

In addition to untwisting a knot in a cord whose ends were sealed together without touching the cord itself, [the 19th-century American spiritualist Henry] Slade claimed to have joined solid wooden rings together, transported objects out of closed containers, and written on pages tightly pressed between two slates—all supposedly under scientific conditions.” In an entertaining early chapter of Shadows of Reality, Tony

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