

## BOOK REVIEWS

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*The Optimum Utilization of Knowledge: Making Knowledge Serve Human Betterment.* Kenneth E. Boulding and Lawrence Senesh, eds. (Boulder, CO: Westview Press, 1983) 382 pp.

This volume is the outgrowth of a symposium on the same topic at the University of Massachusetts, Amherst, November 1981. Boulding and Senesh are co-presidents of the Academy of Independent Scholars, established in 1979 to “provide a creative environment for retired scholars and for those whose independent scholarship does not fit the conventional niches of their institutions.” The Academy invited some thirty scholars from a wide range of disciplines to speak to the issue of “how his or her discipline and profession can contribute to the utilization of knowledge for human betterment.”

Reviewing any symposium is a challenge, and this collection is exceptionally complex. Not only does it present distillations from two dozen largely unconnected fields, but it seeks to synthesize descriptive principles—how knowledge *ought* to be applied for ethical goals of “optimum” utilization and “human betterment.” This review will not attempt to evaluate the substantive summaries of each chapter’s particular field. Rather, it will present overall impressions about where the collective effort appeared to succeed or to falter, and some concepts in selected chapters that struck a resonating chord.

To make this vast topic more manageable, the conveners/editors selected a concrete area of application—education in school systems—and grouped the chapters into three sections. Five chapters are grouped under the section “What Do We Know About Human Learning,” followed by seven on “How to Apply the Knowledge of Learning to Education.” The intent here is to take knowledge in Part 1 about the human learning process and apply it in Part 2 to the practice area of school education.

How these sections relate to Part 3 is unclear. From the section title, “Applying Knowledge to Decision Making,” one might expect these chapters to address how knowledge has been applied or could be more optimally applied to decision making in each field. Several authors tackle this theme: Edmund D. Pellegrino on optimizing use of medical knowledge; Leonid Hurwicz on proposed reforms in the patient system; Vernon Ruttan on use of agricultural technology and institutional innovations as instruments of reform; Arthur R. Kantrowitz on using a “science court” to adjudicate between the “progress establishment” pursuing technological advance and the “critical establishment” pursuing social goals; Donald A. Schön on a process of “reflection-in-action” to improve professional practice. Other papers focus on obstacles to optimum use—how powerful forces in their fields have constricted what knowledge gets

generated and how it gets used or misused: James N. Danziger on linkages between the political system and knowledge; Bernard Roth on the impact of the arms race on knowledge creation and use. Perhaps the conveners hoped that insights from Part 3 would enlighten the processes of human learning and of school education. Senesh strives to realize this hope by a creative chapter at mid-point in which he stitches the first two parts to the third by suggesting how concepts in all chapters might be translated into tangible school curricula.

Two introductory chapters by Boulding and Fritz Machlup serve a useful function of setting limits on the various meanings of “knowledge” and its “optimum” use. Following these appetizers one confronts the main banquet. Unlike the actual symposium in which the different courses are served in fixed order, the reader of the volume has the option of reaching for any dish on the smorgasbord. This reviewer chose to sample next from Part 3 on application to decision making. Many astute points were made, but an overall impression was that a sense of *dialogue* was lacking. Each person spoke about the state of knowledge, its use or misuse, from the viewpoint of his or her specialty; the effect was that of a dozen erudite scholars talking simultaneously with no one listening. (Conference photographs do display intense discourse and rapt attention, but these qualities are not visible in this volume.) The section lacked a sense of exchange, of interactive progress toward an objective of “optimum” utilization.

The sense of frustration diminished when I left Part 3 and moved to Part 1 on human learning. Because of the narrower focus, the chapters here appeared better connected. One could see how their themes might supplement each other: how learning is affected by “cognitive commodities” (Karl H. Pribram), by gender (Diane McGuinness), brain development (Herman T. Epstein), cultural diversity (Paul Bohannon), and the fear of knowledge (Rollo May).

The sense of cohesion was most apparent in Part 2 on applying the “knowledge about learning” from Part 1 to the educational process, with work ranging from the conceptual—formal and informal knowledge systems (Mary Catherine Bateson), concept-based learning (Joseph D. Novak), knowledge fragmentation (Robert D. Beam), and other concepts (David Hawkins, Elizabeth Wright Ingraham)—to the practical—strategies in school systems (Albert L. Ayars), and particularly Senesh’s chapter on “closing the gap between frontier thinking and the curriculum.”

The latter—completed after the conference—extracts from each of the other chapters some implications for school learning or for specific curricula. (An economist, Senesh spent many years developing “organic curriculum” materials for K-12 education that relate social science concepts to students’ experience.) To squeeze the metaphor of the smorgasbord, this chapter seeks to digest the other chapters’ intellectual nutrients to feed the mind and muscle of the organisms called school systems.

For example, Senesh describes a curriculum on applying the scientific method to a social problem and its symptoms, causes, and solutions, and he

illustrates how the approach could be applied to the rising mistrust of the professions as discussed by Schon. Responding to Danziger's theme that holders of political authority frequently shape the creation and dissemination of knowledge to their own advantage, Senesh suggests how this could be woven into curricula on the political system from grades 1 through 12. Kantrowitz's proposal of a science court could be enacted in social science classes.

Among other seminal pieces was Roth's sobering chapter on the impact of the arms race on knowledge, with its evidence on the dependence of academic research on funding from the U.S. Defense Department. "Throughout the Cold War," he concludes, "the knowledge necessary to perpetuate the arms race has been much more sought after than the knowledge needed to end it. This subversion of values is the greatest impact the arms race has had on the optimum use of knowledge."

I especially appreciated Novak's work on concept-based learning, guided by the cognitive learning theory of David Ausubel (1968, 1978) whose central idea of meaningful learning requires (1) that the material to be learned has inherent meaning, and (2) that the learner has to relate the new material to relevant concepts he or she already has. Condensing educational psychology to just one principle, Ausubel would say, "The most important single factor influencing learning is what the learner already knows. Ascertain this and teach him accordingly."

Such a prescription may be an implicit premise of the present volume; it parallels the process by which societal structures and their leaders might learn better ways of applying knowledge. Carol Weiss, Nathan Caplan, and others have distinguished "instrumental" uses of knowledge in which it guides specific actions, from "conceptual" uses in which it serves to modify the conceptual premises upon which subsequent actions are taken. Such modifications are a form of concept-based learning by managers of social systems.

In sum: The symposium organizers/editors are to be credited for tackling the enormous question of how to achieve more optimum utilization of knowledge, and for assembling some clues on how that question might be approached in one particular field—that of elementary school education. The conference theme, and connection between learning processes in education and those in other social systems, are aptly summarized in a passage from Boulding's opening chapter:

The dilemma that besets us in education . . . —that learning may threaten the image of personal identity of the student—applies even more to learning on the part of the powerful. It is often hard for those in positions of authority, respect, and prestige to learn—and hence to change—without threat to their very authority, respect, and prestige. How can we develop a culture and perhaps an organizational structure that can overcome this problem? In regard to the long-term survival of humanity, this is perhaps one of the most important questions we can ask.

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## References

- AUSUBEL, D. P. (1968) *Educational Psychology: A Cognitive View*. New York: Holt, Rinehart & Winston.
- , J. D. NOVAK, and H. HANESIAN (1978) *Educational Psychology: A Cognitive View*. Holt, Rinehart & Winston.

*Clio and the Bitch Goddess: Quantification in American Political History*. Allan G. Bogue. (Beverly Hills: Sage Publications, 1983) 279 pp.

In the pantheon of ancient Greece, Clio—the muse of history—stood watch over the arts with her eight sisters, the patron goddesses of poetry, tragedy, comedy, oratory, music, song, dance, and astronomy. To the Greeks, astronomy was as much an art as music, and so was history. None of the muses had the sullied reputation of a bitch goddess, a temptress ready to betray a sacred trust for temporary, personal gains. Does the title of Allen Bogue's new book suggest that Clio has fallen in with bad company?

No, just the opposite. Bogue intends the title to be ironic. With a sly twist, he has adopted the terminology of a president of the American Historical Association who twenty years ago warned his colleagues not to “worship at the shrine of that bitch-goddess quantification” (Bridenbaugh, 1963). Far from heeding that advice, Bogue has been one of the leading apostles of quantification in history. He has employed quantitative measures in his scholarship, served on major professional committees set up to encourage the collection and analysis of numerical data, and played an instrumental role in the formation of the Social Science History Association, “an interdisciplinary organization formed in 1974 for the purpose of improving the quality of historical explanation by encouraging the selective use and adaptation of relevant theory and method from the social sciences and related disciplines in historical teaching and research” (p. 2). For Bogue, quantification is no bitch goddess; it is more akin to a “no-pain, no-gain” Nautilus instructor bent on toning the flab Clio has developed over the centuries. What Clio loses in the process is to the good; it allows her to squeeze into some of the snug, curve-fitting fashions of contemporary social science.

Eight of the nine chapters in the book appeared in other publications between 1967 and 1983. Three discuss the contributions of the new (i.e., quantitative) political history since the late 1950s. Three others examine the problems of assembling, storing, and sharing quantitative data archives. The last two chapters defend quantification as a necessary and proper part of historical scholarship. The ninth piece, appearing in print for the first time, chronicles Bogue's career between 1952 and 1964 at the University of Iowa, one of several centers of social-science-history ferment. Taken together, Bogue explains, the