

Teaching Thinking Throughout the Curriculum— Where Else?

Teachers who are knowledgeable about their subject, who understand how it differs from other disciplines, and who can convey this to their students are already teaching thinking skills.

Photograph by Dennis Johnson



Academic disciplines reflect historic patterns of thought and remain essential contexts for thinking for today's students. Shown here is Will Berry, senior, in the library of T. C. Williams High School, Alexandria, Virginia.

Much of the current discussion about teaching thinking involves the fallacy that a new curriculum description must mean a new area of knowledge. The advocates of instruction for thinking reason that it must involve something quite different from the curriculum we are already teaching. Teaching thinking sounds like the same sort of problem as teaching arithmetic or how to render first aid. They say we can teach arithmetic and first aid in formal courses, so surely we can teach thinking skills in formal courses? They act as if we have to find out what counts as the *general skills* of thinking and then *teach them*. But this is a philosophical mistake.

The Contexts of Knowledge Forms

Both learning to think and thinking correctly occur in contexts. We learn to think cogently and correctly *within* particular forms of knowledge and their disciplines. The different forms of knowledge in general (e.g., Science) and their disciplines in particular (e.g., Biology, Earth Sciences, Physics, etc.) are not arbitrary devices which have been forced unnecessarily upon us by pedagogues: they are *essential contexts for thinking*. Our present epistemological distinctions have evolved over thousands of years of careful, critical intellectual exploration and pragmatic action in the world, with new disciplines and subareas of knowledge arising as new needs develop. The disciplines consist of patterns of interrelated concepts and explanations: recent concepts and explanations presuppose earlier ones and together form a structure we can use to give meaning to new experiences we must accommodate and to problems we must solve.

In the realm of an unfamiliar context we blunder. Out of our contexts, we misunderstand, we fail to construe correctly, we make mistakes. It is this fact which perhaps more than anything else makes understanding people of other nations so very difficult. Tourists in foreign countries, being

out of context, not uncommonly commit faux pas. Similarly, there are artistic geniuses who are moral and scientific cretins. There are engineers and accountants who have little grasp of the subtleties of the humanities and thus underestimate their pertinence for our lives. I also know an eminent professor of history who demonstrates the grossest misconceptions of science and technology: he sometimes kicks his car to try to get it started.

Analogously, much of today's emphasis on teaching thinking skills is premised on a misunderstanding of the significance of the *epistemological contexts* in which *all thinking* occurs: the contexts provided by each form of knowledge and its disciplines. To separate the chief *forms* of knowledge: Mathematics is different from Science, is different from our Knowledge of Other Persons and their Minds, is different from Morality, is different from Aesthetic-Artistic awareness, is different from Religious awareness, is different from Philosophy. Consider the differences between:

- the mathematic expansion: $(a + b)^2 = a^2 + 2ab + b^2$
- the empirical-scientific relationship: force = mass X acceleration
- a parent's personal knowledge that his child is disconsolate
- the moral injunction that we ought not to cause pain
- our viewing the artistic painting *Mona Lisa*
- the religious claim that God is Love
- the philosophical claim that education for thinking is really a philosophical matter.

These relationships, statements, and claims occur in quite different forms of knowledge, involving different concepts and awarenesses and different tests of claims. This assertion becomes clear when we try to cross forms; for example, if we were to claim that the square on the diagonal = $CaCo_3$, or that God boils at 100 degrees centigrade. Such claims are not merely wrong; they are literally *nonsense*. The varied forms of knowledge and their disciplines are contexts of meaning that differ from one another, and

familiarity with them is acquired in different ways.

What of Commonality?

Of course it is true in a sense that general ways of thinking are not specific to particular disciplines. For instance, the rules of logic apply in a general way in the Aesthetic-Artistic area, in Mathematics, and in Science. But these general ways and logical rules are *mere formats* for any real problem which requires careful, critical thinking within the form of knowledge. A school which teaches children *only* such logical rules would not be training them to think. Children learn to think as they encounter, at levels suited to their age, ways of thinking as part of disciplinary problems, and the structures and patterns of understanding in which such problems are embedded.

Although we can append the same name to moves in an argument within several different forms of knowledge, practice in the move in one form is not the same thing as understanding the move in another. For example, explicating the genesis of a social or personal activity may seem like a useful intellectual skill which could be applied generally. But however essential it may be for a historical or a psychological explanation, it will usually be irrelevant in religious or mathematical arguments. People use the argument from analogy, or commit the genetic fallacy, or argue from the general to the particular in the Aesthetic-Artistic area or in the Empirical-Scientific area. It is not the thinking skill as such which is important; it is seeing that particular move as cogent, recognizing that it may be useful at that point in the disciplinary situation.

Hard Epistemology, Not Soft Psychology

What we require are teachers who know their disciplines in depth, good teachers of math and good teachers of history and good teachers of literature, who understand the structure of their particular discipline and how it is different from that of other disciplines and who can pass on such awareness

to their students. Then students may come to understand both the distinctions and the connections among disciplines and to appreciate when to reason within a particular disciplinary context, when to move to a different disciplinary context, and when to establish bridges between contexts. We do not require a new breed of specialist teachers of an illusory "discipline" called "thinking skills." We need good teachers who can make children *think in the particular discipline the teacher is teaching.*

We need committed, sympathetic teachers who make learning interesting. But we do not require teachers who are afraid to say that a statement is wrong merely because this may temporarily displease a child or a parent or a superintendent. We require teachers who will show students both where they are right and where they are using inappropriate disciplinary thinking. Too much in American schools is based on soft psychology, rather than upon hard epistemology. □

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Suggested Readings

Brent, Allen. *Philosophical Foundations for the Curriculum*. London and Boston: George Allen and Unwin, 1978.

Chambers, (John H.) *The Achievement of Education*. New York: Harper and Row, 1983. Introduction to several pertinent issues.

Degenhardt, M.A.B. *Education and the Value of Knowledge*. London and Boston: George Allen and Unwin, 1984. Provides a short clear discussion of the perennial question, What knowledge is most valuable? Also summarizes much of the writing on the different kinds of knowledge.

Hirst, P. H. "Liberal Education and the Nature of Knowledge." In *Philosophical Analysis and Education*, edited by R. D. Archambault. New York: Humanities Press, 1965. A seminal paper.

Phenix, Philip H. *Realms of Meaning: A Philosophy of the Curriculum for General Education*. New York: McGraw-Hill, 1964/1984. Provides in interesting detail his own account of the different kinds of knowledge.

White, F. C. *Knowledge and Relativism*. Assen, The Netherlands: Van Gorcum, 1983. A masterful work; somewhat demanding.

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