

An Any-Century Curriculum

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Introduction

Our schools are stuck on a performance plateau. Even the best of them fail to hook solidly into students' natural curiosity, natural need to know, natural desire to make more sense of the world and their place in it.

Take away the report cards, certificates, diplomas, attendance laws, parental pressures, and community expectations, and America's schools would fall apart.

Obviously, when the drive to learn is intrinsic, but attempts to educate the young must lean so heavily on extrinsic motivators, something is seriously wrong.

Equally obvious, merely doing more of what we're already doing isn't going to make what's wrong, right. Raising standards, playing with class schedules, eliminating social promotion, administering more standardized tests, cutting class sizes, extending the school year, concentrating on "the basics," facilitating school choice, setting up alternative schools, installing exotic technology, staffing in innovative ways—such experiments may bring marginal improvement but no really significant, lasting gains.

Searching for explanations of the problem, the one place where the education establishment and legislative policymakers seem most reluctant to look is where the problem surely lies—in the curriculum. Schooling, finally, is about what's taught and learned. No matter how high the standards, no matter how beautiful the buildings, no matter how advanced the technology, no matter how smooth the schedule, no matter how willing the participants, if the curriculum is poor, the school will be poor.

Current Approaches to Curriculum

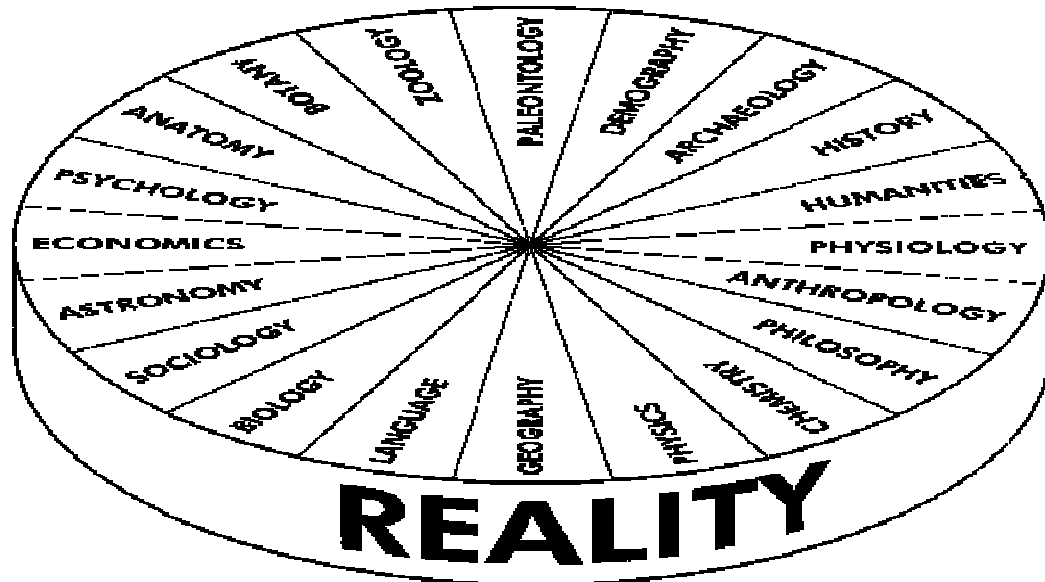
What should the young be taught? Ask a dozen educators, and there'll likely be a dozen different responses: "The main purpose of educating is to introduce students to the various fields of knowledge," ". . . to teach them to think," ". . . to prepare them for useful, productive work," ". . . to create democratic citizens," ". . . to develop individual potential," ". . . to teach the basics," ". . . to transmit our cultural heritage," ". . . to meet student needs," ". . . to instill virtue," ". . . to improve scores on standardized tests," and so on.

Perhaps because of the lack of agreement about overall direction, what's happening today in most classrooms is best explained by what happened last year. What happened last year is best explained by what happened the year before. What happened the year before is best explained by what happened the year before that. And so on, back to the 19th century when chemistry, psychology, biology, economics, physics, sociology, language and the other familiar disciplines took on distinct identities and began to be taught as subjects and courses.

Underlying the disciplines is the assumption that reality—the world around us we're trying to understand—is so complicated it has to be "taken apart" to be understood.

However, these "parts" are also complicated, so complicated no one can master more than one or two of them. A "good" education, therefore, is thought to be one that gives the student a little of several disciplines and a lot of one of them.

This assumption about the organization of knowledge could be represented graphically like this:



The view that knowledge should be compartmentalized is the one most widely shared by both educators and non-educators. There are, however, dissident voices.

Some educators—interdisciplinary—point out that, in the real world, the things we're trying to understand almost never fall into neat little compartments that correspond to the disciplines. They look for ways to bridge between them, and for disciplinary parallels and intersections.

Other educators say the disciplines shouldn't be seen as ends in themselves but as tools. They start with a social problem, topic, or theme and bring the disciplines to bear on it, examining it from different disciplinary perspectives.

Still others never actually mention or even credit the disciplines, but use them nevertheless as sources of facts, ideas or insights as they attempt to help students understand themselves, their immediate situation, the past, and probable and possible futures.

Even the dissidents, then, assume that the disciplines are the foundation of the curriculum, assume that they disassemble the reality we're trying to understand in the most useful and logical way.

It's an erroneous assumption.

What's Wrong With the Disciplines?

The disciplines certainly have their uses. We've created a society that can't function without highly specialized knowledge, and the disciplines provide that, but they aren't by any means the most useful or logical way to organize the general education curriculum.

What students need is a "mental filing system" that organizes and makes accessible in memory everything they know, a system that helps them distinguish between the important and the trivial, a system suggesting things they could know but don't, a system that makes clear the systemically integrated, mutually supportive nature of knowledge, a system that shows them the basic processes by means of which knowledge expands.

And that system should do all of these things in ways the average adolescent can understand and explain.

What Respected Scholars Say

Alfred North Whitehead: “[We must] eradicate the fatal disconnection of subjects which kills the vitality of the modern curriculum.” (Presidential Address to the Mathematical Association of England, 1916)

Felix Frankfurter: “That our universities have grave shortcomings for the intellectual life of this nation is by now a commonplace. The chief source of their inadequacy is probably the curse of departmentalization.” (Introduction to Alfred North Whitehead's *The Aims of Education*, Mentor 1948)

Neil Postman: “There is no longer any principle that unifies the school curriculum and furnishes it with meaning.” (Phi Delta Kappan, January 1983, p. 316)

John Goodlad: “The division into subjects and periods encourages a segmented rather than an integrated view of knowledge. Consequently, what students are asked to relate to in schooling becomes increasingly artificial, cut off from the human experiences subject matter is supposed to reflect.” (*A Place Called School*, McGraw-Hill, 1984, p.266)

Association of American Colleges: “We do not believe that the road to a coherent education can be constructed from a set of required subjects or academic disciplines.” (“Integrity In the College Curriculum, A Report to the Academic Community,” Project On Redefining the Meaning and Purpose of Baccalaureate Degrees, 1985)

Ernest Boyer: “All of our experience should have made it clear by now that faculty and students will not derive from a list of disjointed courses a coherent curriculum revealing the necessary interdependence of knowledge.” (Paraphrased by Daniel Tanner in his review of Boyer's book *High School*. Phi Delta Kappan, March 1984, p. 10)

Harlan Cleveland: “It is a well-known scandal that our whole educational system is geared more to categorizing and analyzing patches of knowledge than to threading them together.” (*Change*, July/August 1985, p. 20)

Buckminster Fuller: “American education has evolved in such a way it will be the undoing of the society.” (Quoted in Officer Review, March 1989, p.5)

Thomas Merton: “The world itself is no problem, but we are a problem to ourselves because we are alienated from ourselves, and this alienation is due precisely to an inveterate habit of division by which we break reality into pieces and then wonder why, after we have manipulated the pieces until they fall apart, we find ourselves out of touch with life, with reality, with the world, and most of all with ourselves.” (Contemplation In a World of Action, Paulist Press, 1992, p.153)

David W. Orr: “A second danger of formal schooling is that it will imprint a disciplinary template onto impressionable minds and with it the belief that the world really is as disconnected as the divisions, disciplines, and subdivisions of the typical curriculum. Students come to believe that there is such a thing as politics separate from ecology or that economics has nothing to do with physics.” (Earth In Mind, Island Press, 1994, p.23)

Peter M. Senge: “From a very early age, we are taught to break apart problems, to fragment the world. This apparently makes complex tasks and subjects more manageable, but we pay a hidden, enormous price. We can no longer see the consequences of our actions; we lose our intrinsic sense of connection to a larger whole.” (The Fifth Discipline, Currency Doubleday 1990, p.3)

A Seamless, Supradisciplinary Curriculum

Studying reality holistically doesn't mean abandoning the Western, science-based "take-it-apart" approach and replacing it with meditation or some New Age strategy. What needs to be abandoned is the assumption that the traditional disciplines segment reality in the most useful way possible.

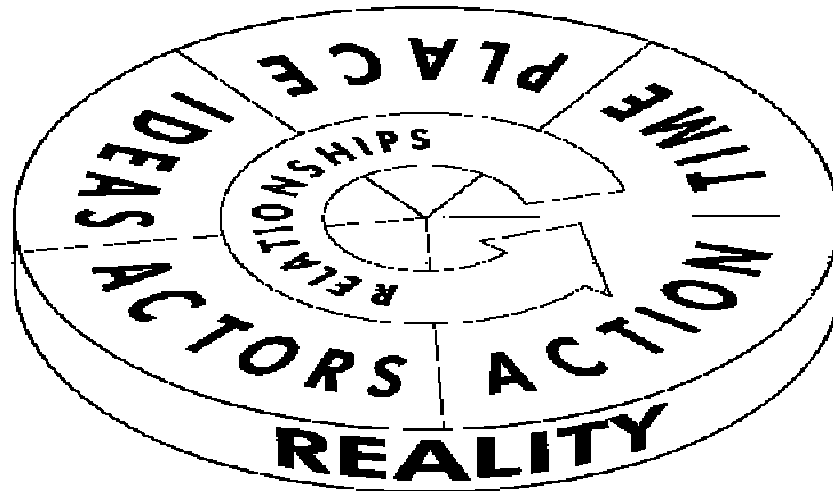
Fortunately, an alternative way of organizing knowledge doesn't have to be invented. It's already in place and in constant use by all of us—may, in fact, already be "hard-wired" in our brains. All we need to do is make this implicitly known system explicit and formally adopt it as the "meta-organizer" of the general education curriculum.

Educating, finally, is about understanding—making sense of experience. When we isolate some part of experience in order to describe or analyze it, we seek just five kinds of information:

1. Its physical milieu
2. Its location in time
3. The identity of the participating actors or objects
4. The nature of the action
5. The states of mind accompanying the action.

In short, we want to know who, what, when, where, why. These five categories, not the familiar disciplines, are the optimum conceptual organizers of general study. They are the "raw material" from which we construct all thought, all language.

Our "natural" conceptual framework for organizing knowledge could be represented graphically like this:



Think of the five elements as separate disciplines, but as disciplines so interrelated they must be studied with all five being taken constantly into account.

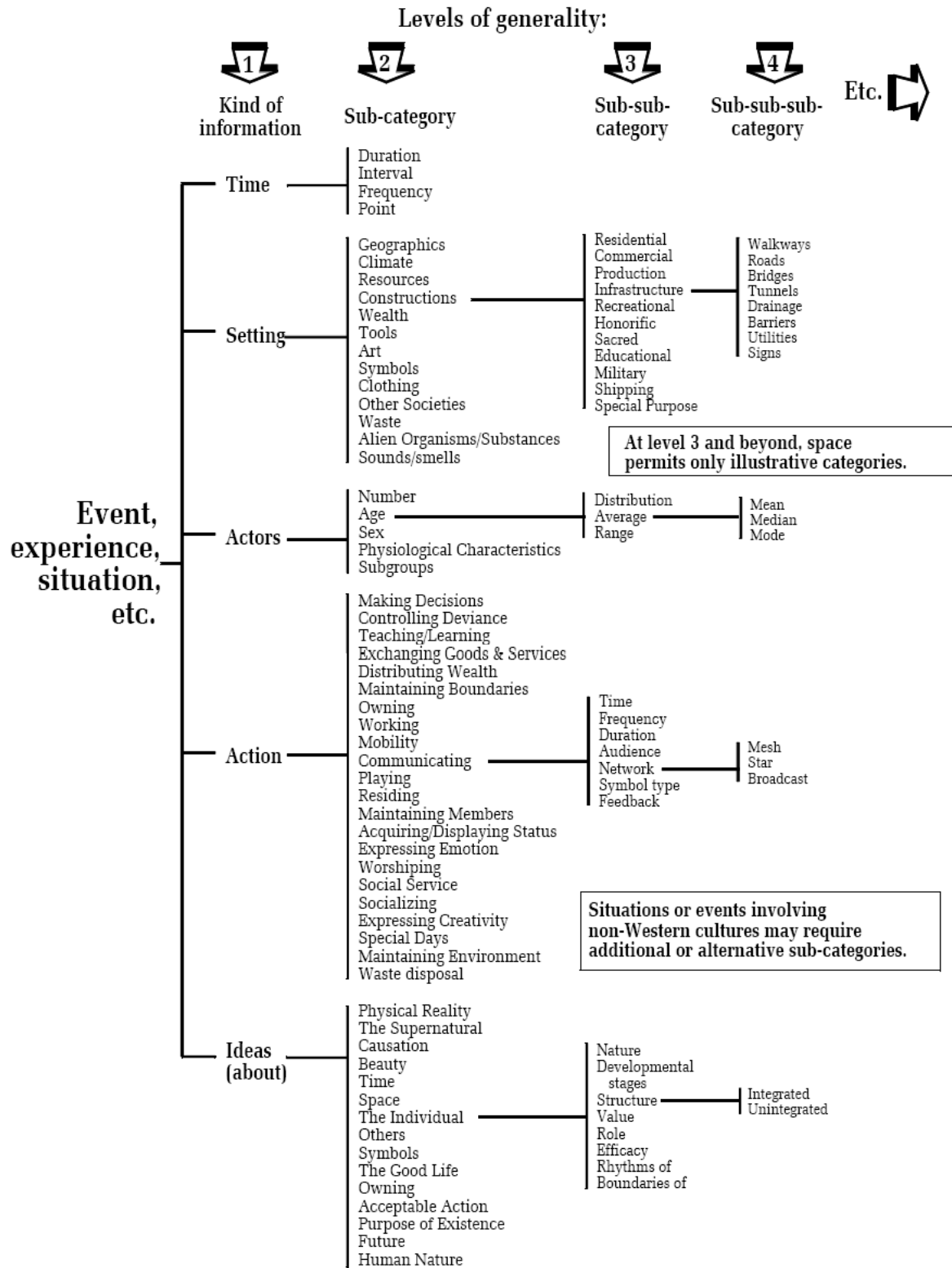
The traditional disciplines and other specialized studies "fit inside" this mega-discipline, elaborating certain parts of it, neglecting other parts.

On the next page is a composite of student efforts to organize their "models of reality," or "master mental filing systems." Helping students raise some version of it into consciousness, then examine, elaborate, and make increasingly sophisticated use of it in describing, analyzing and imagining alternatives to real-world experience, should be the primary purpose of a general education.

As can be seen, the model encompasses all experience, erasing the artificial boundaries between school subjects, and between such subjects and ordinary experience. It also identifies presently neglected fields of study. Most importantly, it makes all knowledge part of a single, systemically integrated conceptual framework the coherence of which makes it far more accessible in memory and therefore useful.

Standards and measures of accountability should deal not with school subjects in isolation, but with the student's ability to apply her or his model of reality to ordinary, real-world experience.

How The Brain Organizes Information to "Make Sense"



Systemic Relationships: In every situation, each category and sub-category is affected by many others.

Notes on the Conceptual Framework

A first reaction to the Master Conceptual Framework above may be that it's long and complex. Should this be the case, keep in mind that the Framework:

- Is far shorter than a comparable listing of major concepts of the "core" disciplines
- Is composed only of familiar concepts
- Uses our culture's "standard" organizing categories
- Is free of jargon
- Is already in use, even by small children
- Is universal. It can be used to study any reality
- The student builds the Framework over time, as understanding grows

The Conceptual Framework could be called a static model of reality—a guide that will yield a "snapshot" of things as they are at a particular moment in time. Once the elements of the Conceptual Framework are fixed in mind, however, it can then be used to study the dynamics of change. This involves tracing the systemic interactions between the various identified parts of reality.

Perhaps the greatest value of the Conceptual Framework is that it facilitates the growth of individual and collective knowledge by identifying those elements of reality which are potentially relatable. This function is so important it deserves elaboration and illustration.

Creating Knowledge

"Well, Johnny! What did you learn in school today?"

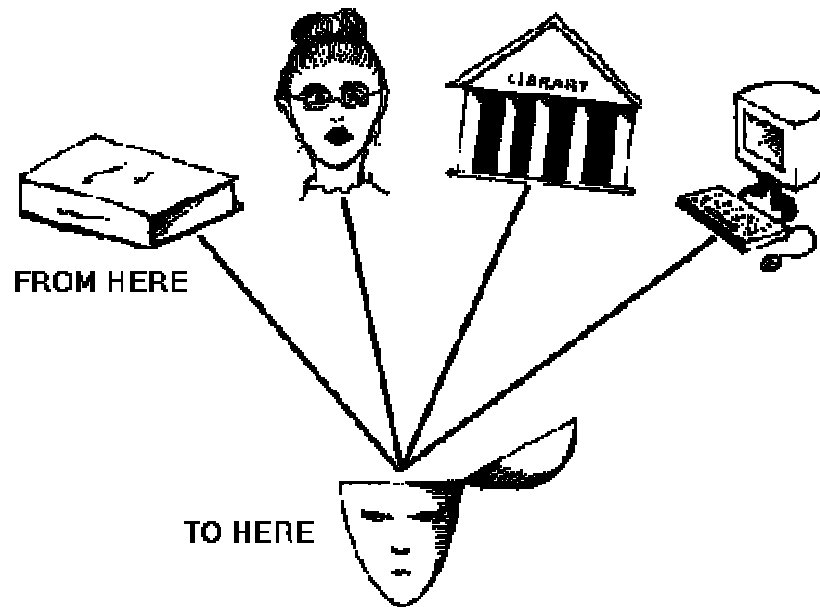
"Nothing."

"Oh, come on! You must have learned something!"

"Well, yeah, I learned that the Nile is the longest river in the world, that a short pendulum swings faster than a long one, and that John Adams was the next president after George Washington. Oh! Almost forgot! I learned to say my sixes times table without making any mistakes!"

"Good boy, Johnny! Here's a dollar. Keep up the good work."

The commonsense, widely shared view of what education is all about is wrapped up in that brief exchange. Education is thought to be about information transfer—moving information about geography, history, physics and so on from the heads of those who know to the heads of those who don't.



In establishment jargon, this process of transferring information is called "inculcating knowledge."

We think of knowledge in quantitative terms. It can be "passed on," "handed down," "absorbed," "stored up." "Empty-headed" students "cram" for exams, "pounding information in" until heads are "stuffed" with knowledge. "Material" is "covered."

Our metaphors mislead us.

Knowledge is created by finding systemic relationships between parts of reality not previously thought to be connected (e.g. moon→tides, mass→gravity, friction→heat). This is not only true for knowledge in general, but for the process of learning within the learner's mind. One useful application of the Model titled "**How the Brain Organizes Information to 'Make Sense'**" (p. 6) is to generate hypotheses—questions for investigation—about possible relationships between parts of reality. A tool for generating possible relationship hypothesis like these is at:

<http://www.marionbrady.com/RelationshipHypothesisGenerator.html>

The tool allows users to juxtapose any two elements of the model (at Level 2) to encourage thought about the possible links between the two elements.

There's a risk in taking note of some of the terms useful in thinking and talking about relationships and systems theory. Teachers may be tempted to build assignments around them rather than allowing students to gradually become familiar with them through use and context.

Including a representative list of such terms, however, may serve as a reminder of how much various fields of study and school subjects have in common when the focus is on big, important ideas rather than on specific facts.

adaptation	interaction	process
boundary	dynamic	rate
cause/effect	equilibrium	rhythm
change	feedback	stability/instability
chaos	frequency	stasis
communication	function	static
complexity	inertia	structure
component/element	lag	subsystem
critical mass	model	system
cumulative	morphogenesis	tipping point
causation	multiple causation	trend
cycle	organization	variable
duration	pattern	

Where Should We Go From Here?

There's no getting around it. The traditional general education curriculum, the one presently frozen in bureaucratic place with subject-matter standards and standardized tests, is fundamentally flawed. That curriculum:

- ignores extremely important fields of knowledge
 - denies the fundamental, systemically integrated nature of knowledge
 - lacks criteria establishing the relative importance of various content
 - vastly overworks memory to the neglect of all other thought processes
 - has no overarching aim
 - lacks built-in mechanisms forcing it to adapt to social change
 - doesn't move smoothly through increasingly complex conceptual levels
 - disregards the brain's need for order and organization
 - fails to address complex, critically important moral and ethical issues
 - casts learners in unnatural, passive roles
 - neglects alternatives to text and speech as sources of learning
 - lends itself to superficial methods of evaluation
- (just to begin a list).

These problems can be solved only by putting in place alongside traditional specialized studies a course that discloses to learners the holistic, systemically integrated nature of knowledge. The aim of that course should be simple, clearly stated, and understood by every teacher and learner – making more sense of experience.

Critically important to sense making is a clear understanding of the sense-making process.

Taking Action

Putting in place a curriculum that respects the necessity of both specialized and holistic study isn't difficult, especially if the effort is directed to adolescents at the middle school level. The basic elements of our everyday approach to sense making are not only simple and obvious, they're already embedded in language and thought, shaping our

conversations, stories, myths, reports, poetry, novels, humor, plays, and other tools for modeling reality and communicating sense. Making those five elements explicit and formally adopting them as curriculum organizers not only solves every major problem with the traditional curriculum, it strengthens the academic disciplines by putting them in context and integrating them.

Of course, even minor changes in the curricular status quo are difficult. Those who understand the problems don't make policy, and those who make policy don't understand the problems. Educators are trained in particular disciplines, and often feel threatened by change, even a change that could make their jobs easier. Parents, school boards, newspaper editorialists and other opinion leaders, convinced that how it used to be is how it ought to continue to be, also sometimes oppose departures from traditional practice. Institutional inertia, legislative mandates, and onerous, time-consuming bureaucratic demands stand in the way.

The single most formidable bureaucratic obstacles of all, however, are federally mandated subject-matter standards and tests, locking the traditional disciplines in rigid, permanent place as the primary organizers of knowledge. Institutional inertia, reinforced by the machinations of powerful corporations profiting from the curricular status quo, make meaningful change extremely difficult, perhaps even impossible.

Real change—meaningful change in learner intellectual performance—will come when it's finally realized that the primary educational task isn't, as is now supposed, to “cover the material.” Transferring existing knowledge from those who know to those who don't has its uses, but today's answers won't fit tomorrow's questions. The young must adapt to an unknown, unknowable future. That requires continuous construction of new knowledge, and the most useful tool for that purpose is an understanding of the knowledge-constructing process.

Long before they come to school, the young are making routine use of a comprehensive, sophisticated process for making sense of experience and creating new knowledge. Helping them lift that process into consciousness, and elaborate, refine, and make routine use of it, is the most important task of a general education.

Operationalizing a Systemically Integrated Curriculum

A free, “hands on,” student-centered course of study illustrating a general education curriculum that makes formal use of our “natural” approach to organizing knowledge is available. Suitable for adolescents and older learners, it can be accessed and downloaded at:

<http://www.marionbrady.com>

(See link to *Connections: Investigating Reality* near bottom of webpage.)

Because the course deals with knowledge generally and comprehensively, it can be coordinated with or superimposed on the traditional curriculum without bureaucratic change. However, because any departure from traditional practice in mainstream instruction is likely to be strenuously resisted, pilot and experimental programs are most likely to be acceptable by those working with learners either so far advanced or so far behind, their performance on the usual performance measures are of little concern.

Connections: Investigating Reality was designed with multi-disciplinary teacher teams primarily in mind, (a staffing arrangement the authors believe should be the rule rather than the exception). However, it might also be attractive to individuals teaching in broad fields such as language arts or social studies who enjoy a degree of autonomy, to home-schoolers, to administrators and faculties wishing to broaden their conception of the nature of the task of educating, and to teachers of interdisciplinary courses offered by a few colleges and universities.

It provides a basic “scope and sequence” platform, with an expectation that users will elaborate and refine the activities and add new ones. Provision has been made for user dialog.

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