

What * How * Why

Reflections, Retrospective and Prospective

**Robbie McClintock
October 22, 2015**

What (1955-1976)

- ["Flaneurs of the Fields" \(2011\)](#)
- ["On the Liberality of the Liberal Arts" \(1971\)](#)
- [*Man and His Circumstances: Ortega as Educator* \(1971\)](#)
- ["Toward a Place for Study in a World of Instruction" \(1971\)](#)
- ["Universal Voluntary Study" \(1973\)](#)
- ["*Enkyklios Paideia: The Fifteenth Edition of the Encyclopedia Britannica*" \(1976\)](#)

How (1972-2002)

- ["Into the Starting Gate: On Computing and the Curriculum" \(1986\)](#)
- ["Marking the Second Frontier" \(1988\)](#)
- ["Kant in the Culture Factory: On Design, Study, and Technology in Education" \(1989\)](#)
- [*The Cumulative Curriculum: Multi-media and the Making of a New Educational System* \(1991\)](#)
- [*Power and Pedagogy: Transforming Education through Information Technology* \(1992\)](#)
- [*The Eiffel Project: New York City's Small Schools Partnership Technology Learning Challenge* \(1996\)](#)
- [*Educating America for the 21st Century: A Strategic Plan for Educational Leadership* \(1999\)](#)
- [*Smart Cities: New York -- Electronic Education for the New Millennium* \(2000\)](#)

Why (1961-on, esp. 2002-on)

- ["Machines and Vitalists: Reflections on the Ideology of Cybernetics" \(1966\)](#)
- [*Man and His Circumstances: Ortega as Educator* \(1971\)](#)
- ["From the Ought That Is To the Is That Ought To Be: Ortega and Dewey on the Pedagogical Problem" \(1983\)](#)
- [*The Educators Manifesto: Renewing the Progressive Bond with Posterity through the Social Construction of Digital Learning Communities* \(1999\)](#)
- [*Homeless in the House of Intellect: Formative Justice and Education as an Academic Study* \(2005\)](#)
- [*On \(Not\) Defining Education: Notes Towards the Definition of Historical Pedagogy* \(2007\)](#)
- [*Enough: A Pedagogic Speculation* \(2012\)](#)
- [*Formative Justice: To Make of Oneself What One Can and Should Become* \(2016\)](#)

What

From "Toward a Place for Study in a World of Instruction"

(*Teachers College Record*, vol. 73, no. 2, December 1971, pp. 161, 204-5).

"Preserve measure, observe the limit, and follow nature." This line from Lucian was one of fifty-seven favored phrases that Montaigne inscribed upon his study wall. All offer terse advice, one man to another, on the discipline of life: resist illusion, aspire to humility, beware vanity, judge cautiously, love mankind but be not its dupe. A series of sayings from sources both familiar and obscure: they are a key to our past, a sign of its character, frailty, and future.

Fifty-seven sayings upon the wall, upon the *study* wall. A skeptical, ironical egoist, Montaigne was but one vital vector in the myriad of human lives. Still, he stands out as a significant person, advantaged to be sure, but accomplished as well; and both his advantages and his accomplishments were what they became because he sustained himself in a life of continuous self-education. The sobering sentences that surrounded Montaigne as he worked helped direct and sustain his formation of self; they reinforced a regimen of self-culture, speaking to him sagely as he cut his quill, shelved a book, stoked his stove, or gazed in silent introspection. Such sayings were the stuff of pedagogical philosophy, classically conceived. Such sayings set forth the ends and means of study, of meditation, inquiry, and self-formation.

Study, inward driven study, was no mere private matter for Montaigne: it is a theme that pervades his essays. For him, education was a continuous heightening of consciousness, an unceasing sharpening of judgment. When he spoke "Of Training," it was not a training administered by some external teacher, but a self-imposed bringing of one's mental powers to their full potential, as an athlete in training brings his physical powers to a peak. He admired Canius Julius, an unfortunate Roman noble wrongly condemned by Caligula. Canius spent his last moments bringing his attention to the full alert so that as the ax cut he could perceive the nature of dying. To celebrate this example, Montaigne quoted Lucan: "That mastery of mind he had in death."

. . . 44 pages wending through Western cultural history . . . concluding:

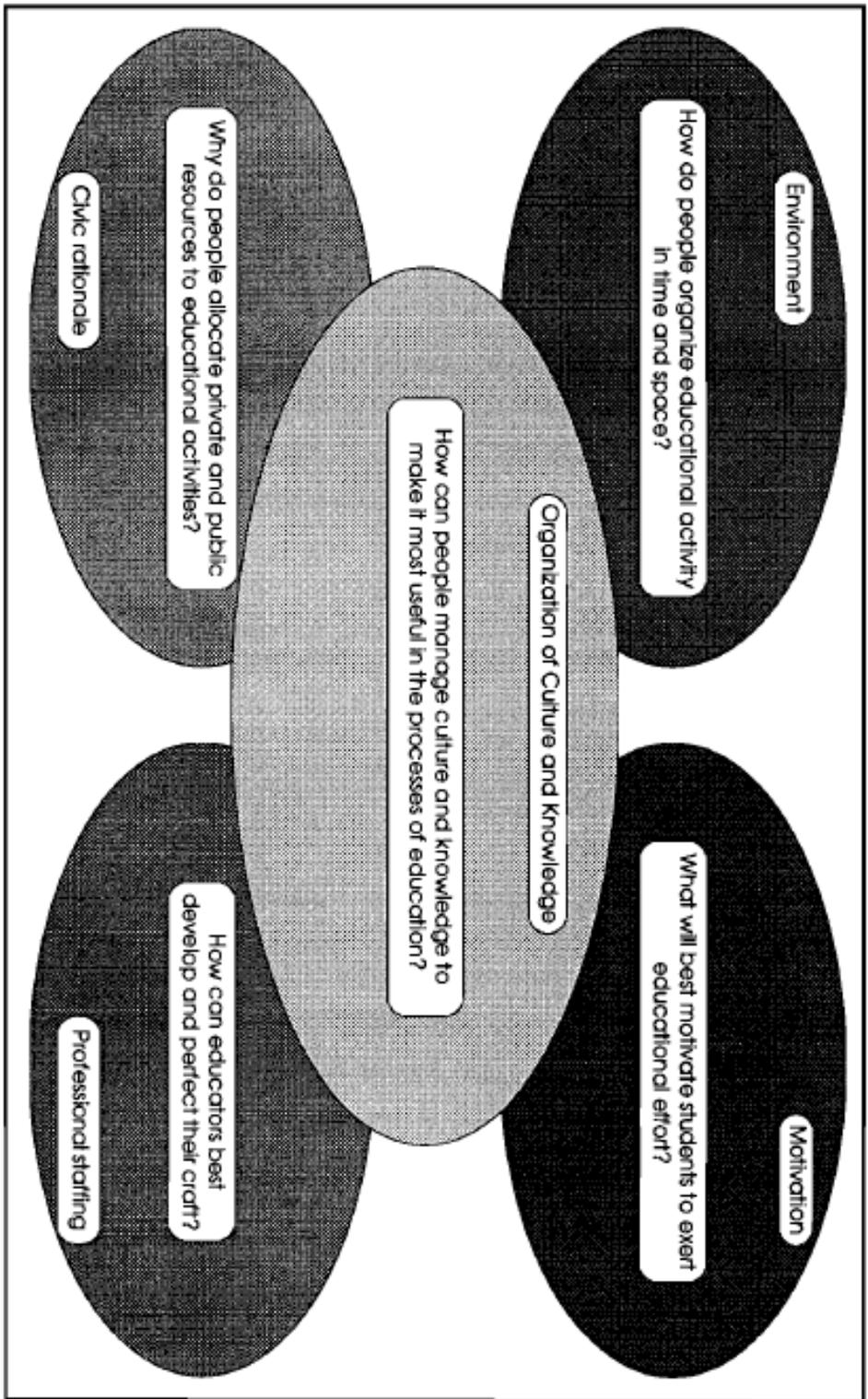
In this temper, one last hypothesis: in making the case for study, one does not denigrate the teacher's profession. To be sure, one has to speak out against exaggerating the power of instruction. But this criticism does not reject teaching; in place of a rejection, it is a quest for the mean, a celebration of the Greek sense for nothing too much, an attempt to balance an inflated version of the teacher's mission with a touch of reality.

Yes—let us continue our effort to teach all as best we can, but let us do so with more humility, sobriety, and realism. Instruction does not make the man. A teacher gains coercive power to control and mold his students only so long as they abdicate their autonomy and dignity. Such an abdication is not a good foundation for an educational system, especially since it is less common and continuous than many would seem to believe. The teacher's authority, be it as a model of excellence or of folly, is a quality his students project erotically upon him. It is an attraction or repulsion that results because students are forever suspending their interest in learning their lessons; instead they abstract, they reflect; they step back mentally and with curiously cocked heads they observe their didactic deliverer, musing with soaring hope, wonder, joy, resignation, boredom, cynicism, amusement, sad tears, despair, or cold resentment—*Ecce homo!*

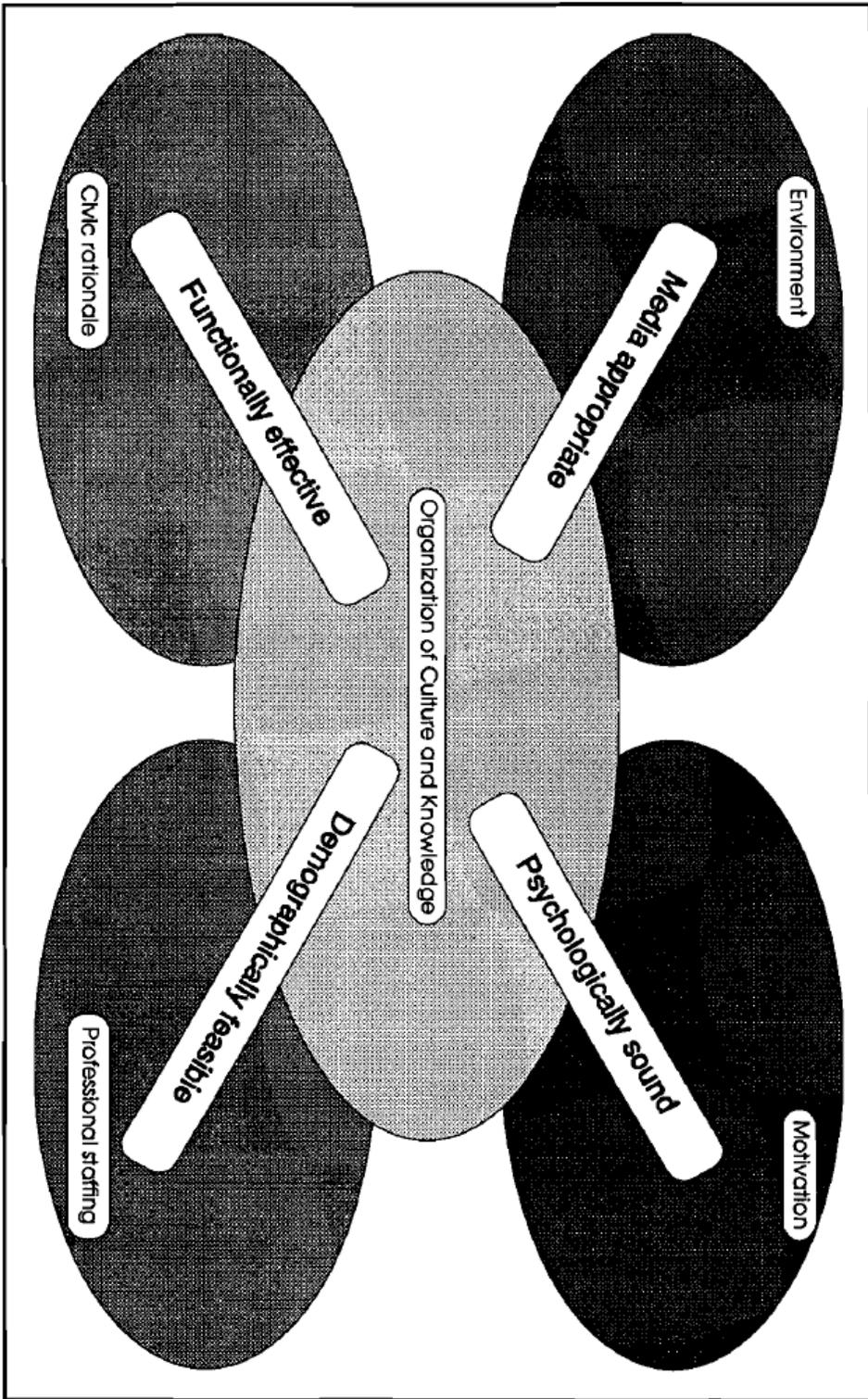
A teacher may or may not cause learning, but he will always be an object of study. Hence the pedant so surely plays the fool. But hence too, the man teaching can often occasion achievements that far surpass his personal powers. Great teachers can be found conforming to every type—they are tall and short, shaggy and trim, timid and tough, loquacious and terse, casual and stern, clear and obscure. Great teachers are persons who repay study, and they repay study because they know with Montaigne, "My trade and my art is to live."

How

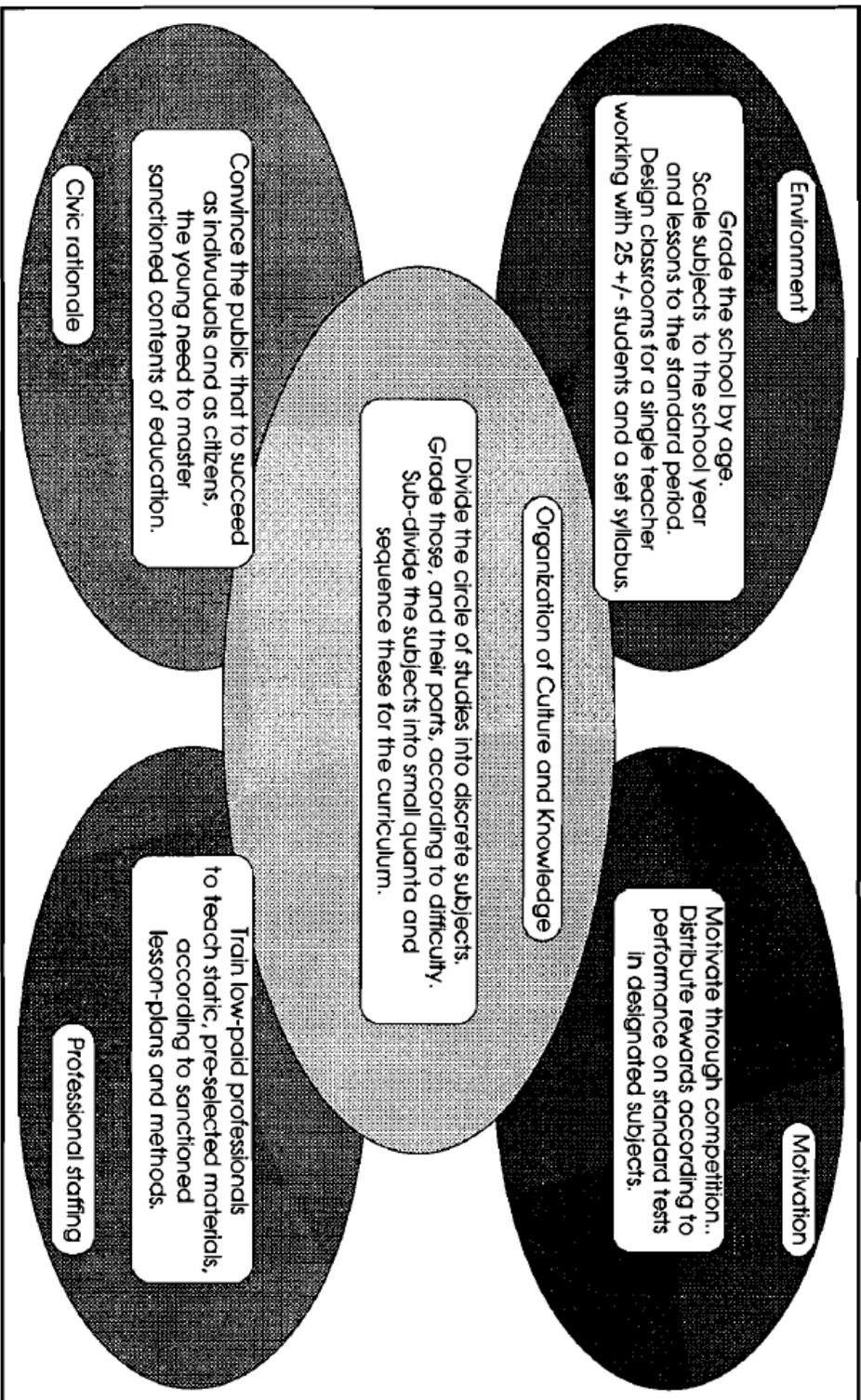
Visuals from the "Cumulative Curriculum Project" (1991-1992)



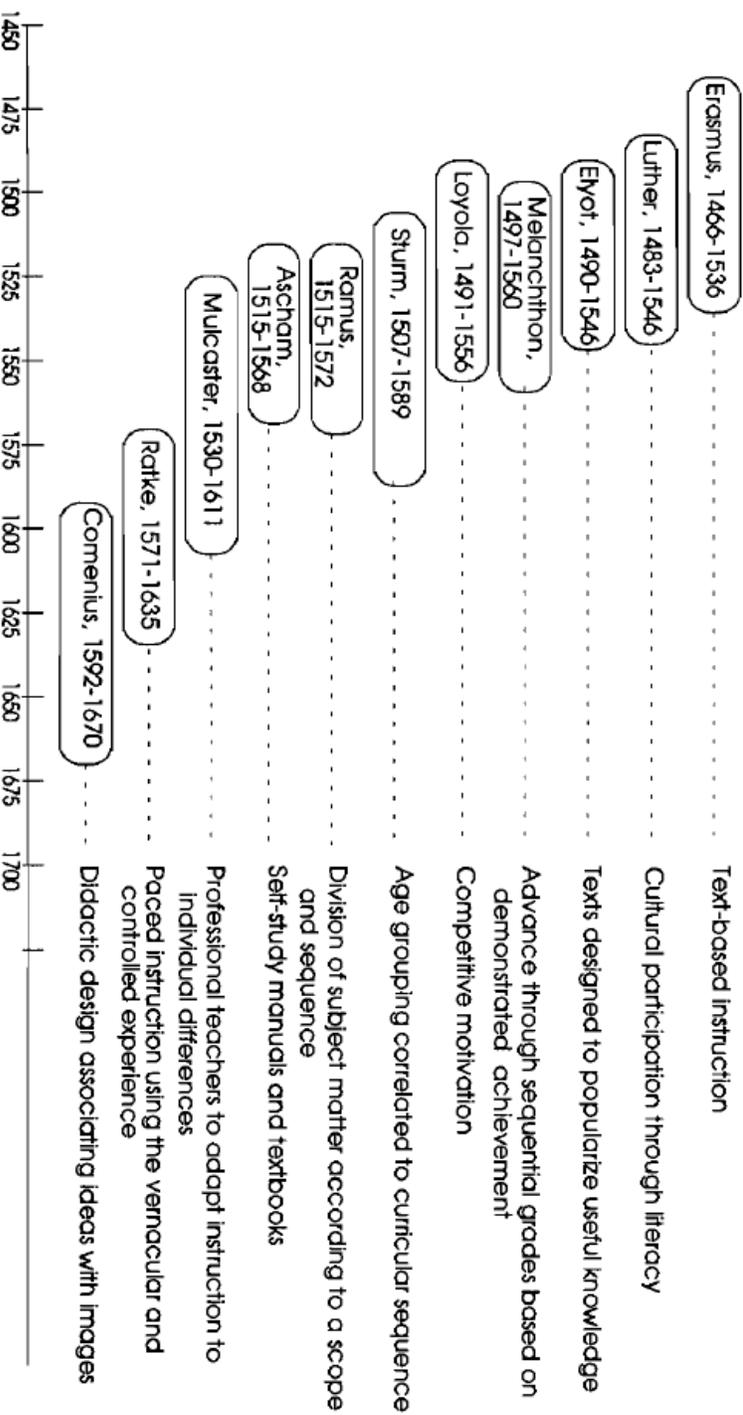
Structural limitations on historical innovation in education



The Historical Grounding of Print-Based Schooling

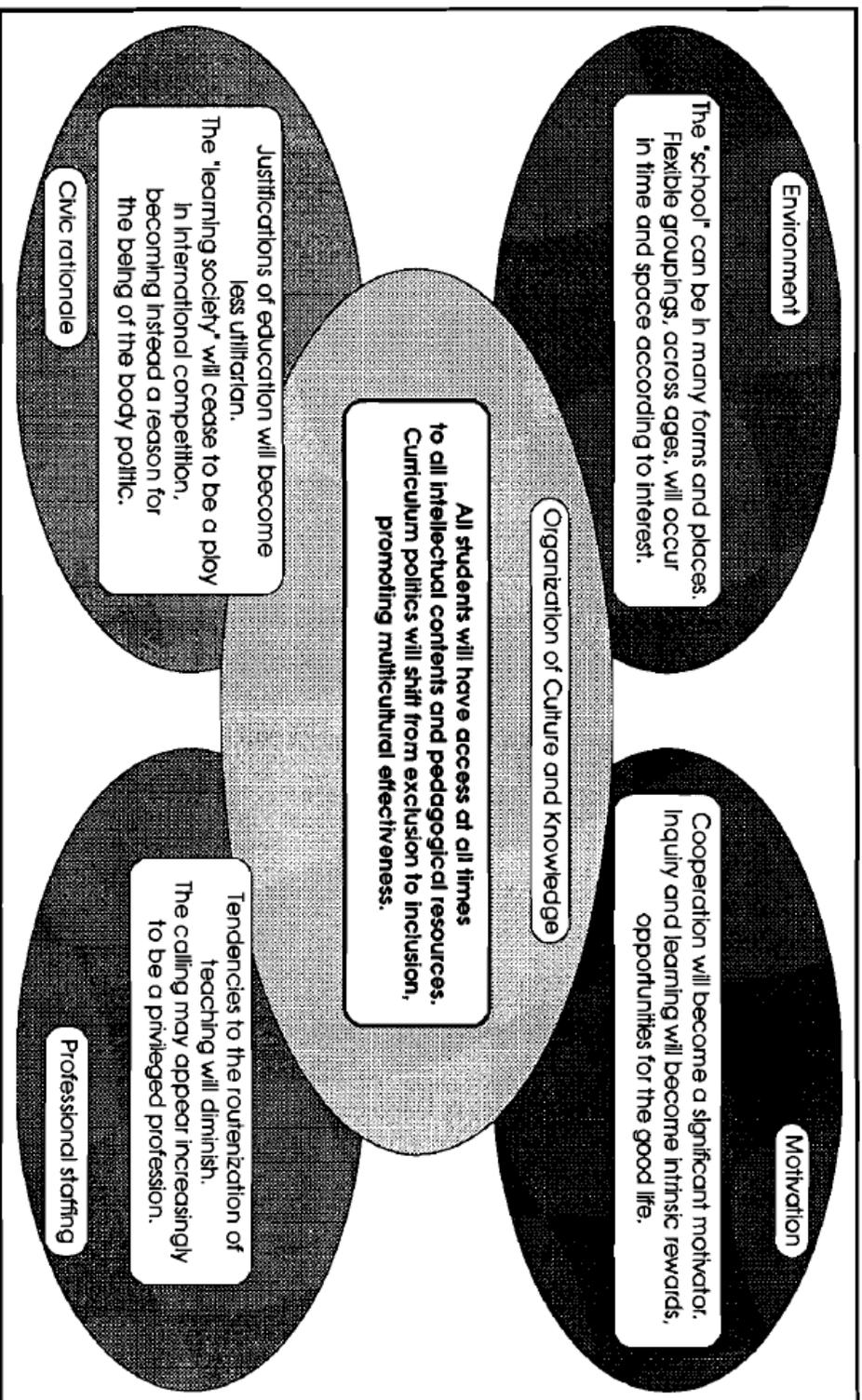


Printing and Early-Modern Educational Reform



Most of the main techniques of schooling were developed between 1500 and 1650, and printing was an essential means by which the reformers implemented their ideas.

The Historical Grounding of the Cumulative Curriculum



Why

Life as the primary actuality

I attribute a strong, ontological status to life—I live, therefore I, and my circumstances, what stands about me, all exist. *La vida, vivir*, life, to live, living—these pointed to the ontological ground for José Ortega y Gasset, whose life and work I studied closely for ten years. Descartes *cogito* yields to Ortega's *vivo*, beginning not from thinking, so derivative, but from living, from being alive, the primal ground—I live, therefore I perceive, I think, I act, I direct myself and with body and mind I struggle unto death with the world of my life.

My life, my "I" and "my circumstances," is but one among many lives—each in some way apparent in my circumstances, yet each with its own circumstances, all intersecting in circumstantial interactions. All these circumstances together constitute the lifeworlds taking form through these lives. My life, the life I live in the world of my life, links ineluctably with a great web of unique lives, each indissoluble from its circumstances, binding with other lives and others sets of circumstances, with *life* itself, a basic constituent of the universe, emerging perhaps from some primordial indeterminacy, immanent in the chaos, otherwise inert. . . .

All instances of life are self-forming and self-maintaining. Each living organism is a complex, recursive system able to perceive the world around it in some manner and to act in that world in some fashion for the purpose of maintaining its capacity for self-maintenance. The capacity to act from within itself to form and maintain itself is what differentiates life from inert matter. That capacity to determine itself is probably a fundamental property of the universe, an emergent expression of a basic indeterminacy in the elemental constituents of the world. We should think of life, in general, as a totality of recursive actions by self-determining agents. In this sense, life is an emergent property of the universe, a universe the constituent elements of which include an elemental indeterminacy.

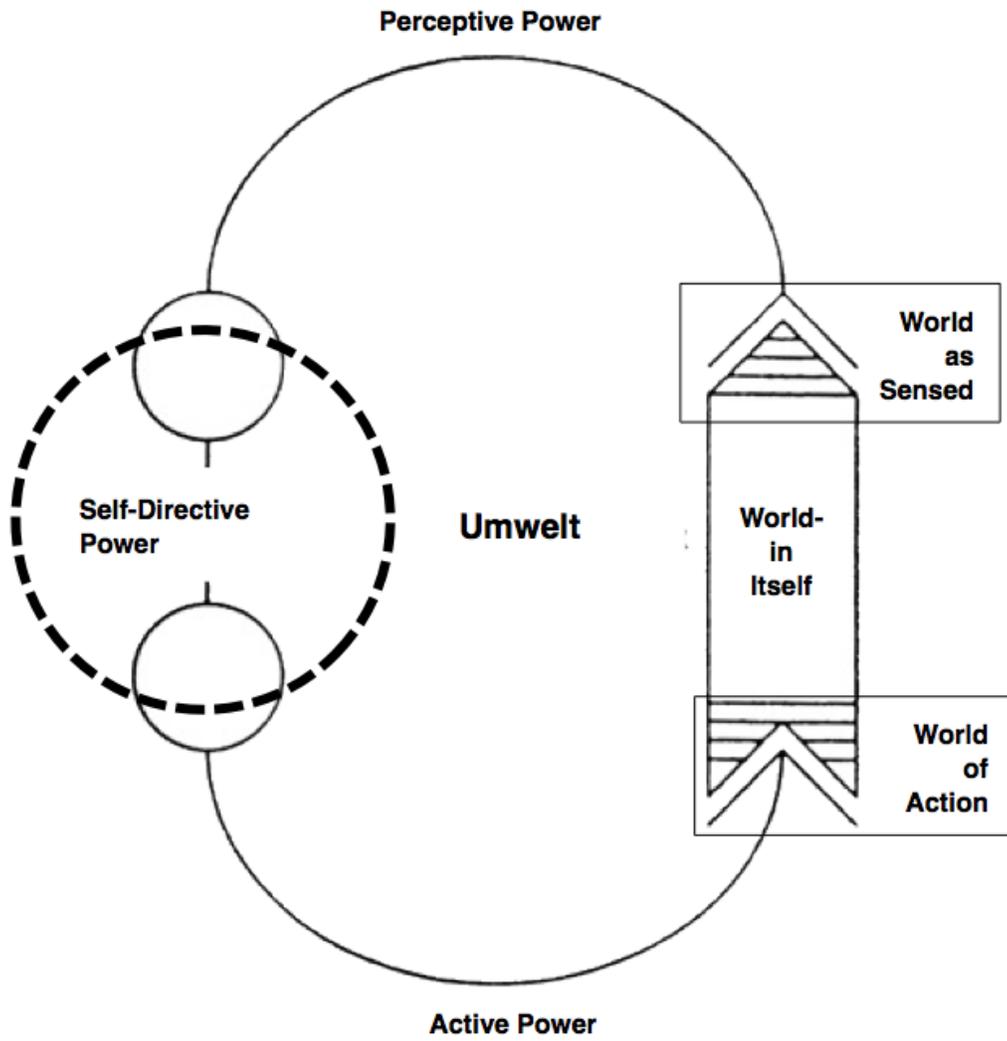
Why

The form of life

All living organisms exercise three functionally distinct but overlapping powers: *a perceptive power*, which acquires information about circumstances, that is, about the organism and its field of agency; *an active power* that can alter both the organism and its field of action; and *a self-directive power* that purposively guides the perceptive and active powers. With these three powers, organisms recursively use their agency, repeating themselves over and over with cumulative variations, to maintain themselves as living agents as best they can.

Additionally, each organism has a field of agency, its circumstances, which correlate with its perceptive, active, and self-directive powers, for all organisms are Kantian—their circumstances fit the their powers like a glove. Agency takes place from inside the self within its field of possible perception, feasible action, and its repertoire of feedbacks useful for self-direction. The rest is moot. The organism exercises its powers of perception, action, and self-direction, seeking to initiate and control the eventualities of its life. The organism, as a self, does so with a final purpose: self-maintenance as a living organism in the world, a totality that encompasses the organism, its field of agency, and whatever else there may exist.

Note here that the domain of experience—the field of agency—takes place within a larger, encompassing world, one beyond the agent's ken. Each form of life inhabits a cosmos defined by the sum of its perceptive, active, and self-directive powers, with its peculiar cosmos surrounded by an unknown chaos that can suddenly irrupt into its world. Among these irruptions are chance events, things that happen relative to agency by sheer luck, good or bad. The irruptions also include death, the last flicker of agency, expired, giving way to the realm of nothingness, which remains unknown to life despite the huge totality of its experience. But to balance death, the irruptions further include conception, the advent of a new life taking place, a new self with its new circumstances. These irruptions significantly shape life and lives, but they are not what constitute formative experience, which takes place within the circumstantial fields of life.



Why

The formative power of human life

To find *formative experience*, we need think about the different lifeforms as they parade down the evolutionary path. Great changes in the field of agency have taken place. Through the slow, ongoing process of evolutionary emergence, the morphology of living forms alters through chance genetic change, tested by environmental pressures. With each morphological alteration, perceptive, active, and self-directive powers, and the associated fields of agency, all change as well. This evolution has gone on for several billion years, with life itself, as a totality, flourishing in a multitudinous differentiation of its perceptive, active, and self-directive powers. Untold hosts of creatures have lived and died, each leading a specific, unique, and finite life, each using its perceptive, active, and self-directive powers to doggedly extend and maintain its possibilities of experience. Life on earth has been a wonder of self-sacrificing, collaborative agency. In all this vital experience over eons, where do we find *formative experience* and what is its significance in the panorama of life?

With each evolutionary change, new patterns of perceptive, active, and self-directive power emerge; and whenever one does, the new pattern itself then remains stable across the succession of separate lives within each species. Environmental factors being constant, the genetic inheritance of each species establishes what the specific organism can perceive, how it can act, and its abilities of self-direction. A cat lives its life perceiving its circumstances as a cat, acting in its circumstances as a cat, directing itself in relation to its circumstances as a cat, all through its recursive use of the powers it acquired in its reproduction as a cat. Its field of agency was essentially fixed in the process of its biological reproduction.

Humans, too, are such a lifeform. Each of us inherits perceptive, active, and self-directive powers characteristic of our species, but the way these work for humans has one very significant difference compared to other forms of life. Out of the sum of our inborn perceptive, active, and self-directive powers, a fourth power has emerged, *a formative power*. In our

lives, subsequent to reproduction, humans use our formative power to transform our inborn perceptive, active, and self-directive powers, over time profoundly changing our world of agency and experience.

Humans form our perceptive, active, and self-directive powers and thus shape the circumstances within which we conduct our lives. We devise eyeglasses, bicycles, clocks, and countless other aids to perception, action, and self-direction with our formative power. It enables us to transform our perceptive, active, and self-directive powers during the course of our personal and collective lives. Unlike the cat, which will always see the world through the perceptive powers acquired in its birth as a cat, humans work throughout our lives to shape our perceptive, active, and self-directive powers, greatly transforming our capacities during the course of our lives, personal and public.

Through formative experience humans have mastered the art of acquiring characteristics. Formative experience takes place as persons use their perceptive, active, and self-directive powers in interaction with their circumstances to recursively alter those powers and the way they can interact with their circumstances. These life choices present the most basic, unavoidable problem, beyond acting effectively, of acting justly. People must use their capacities in the conduct of life but in using those capacities, they must also attend to how they can and should form those capacities, sustaining, strengthening, augmenting, and modulating them. Formative power embeds a deep duality in how humans can construct their experience. With the emergence of our formative power, we need to attend in everything we do to doing it causally, producing the intended effect, and to doing it formatively, controlling how the cycles of interaction in what is taking place affects our powers of perception, action, and self-direction.

Why

Recursion and the inner senses

To start, take a simple example, a person's sense of balance, more precisely her ability to sense her imbalance. There is no pose of perfect balance that a teacher can instruct a child to assume and then hold, remaining rigidly still. Balance is a virtue that cannot be taught, although everybody learns it. Consider how. Let's watch the toddler again. She often falls, and in doing so she will begin to sense her inner sense of balance. It does not say, "Hey, girl, right on!" It signals only when she has tipped out of balance, quickly giving her some time to react, which at first will be hesitant and clumsy. But through recurrent trials, through recursive experience, she will gain confidence and coordination in responding to her sensing her imbalance and compensating for it. With her inner sense of balance well established, every anomalous move she then makes is another iteration in her recursively mastering her capacity to keep her balance.

With the sense of balance, we have acquired a pretty clear understanding of how it works and how people use it. With many other inner senses, we have little or no understanding of how they work physiologically and neurologically, and often our capacities to use them are limited and unsure. Nevertheless, we find ourselves aware of such senses, we actively try to use them, and we trouble ourselves to clarify and form them so that we can use them in experience with more fulfillment. For each sense, we postulate a hypothetical condition or virtue, an ideal good, which we never securely and fully incarnate. Are my clothes too casual, too formal for the occasion? Do the colors clash? Is there too much salt in the dish? Have I been too harsh? Too acquiescent? Too forward? Have I tried too hard? Or not hard enough? Speaking rather generically, we might say that with any inner sense what we actually sense is a deficiency, an excess, an anomaly, a deviation relative to its ideal state and in sensing this, we can work to compensate for it. We always over or under compensate, and the approximation to the norm goes on recursively, strengthening our capacity to use the inner sense in our experience.

All the diverse inner senses pertain to our perceptive, active, and self-

directive powers, or to newly formed combinations of them, and the recursive strengthening of our mastery of them drives the formative power spoken of earlier. In carrying out this formative effort, people have created and employed powers of inductive and deductive reasoning about their experience, but that is part of our acquired heritage. The formative power, itself, arises personally and historically from the recursive ability to expand and perfect the variety of inner senses.