Kant in the Culture Factory -- 10-01-2018

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Hello,

I'm working on this essay as a contribution to a set of online worksites that prototype a Collaboratory for Liberal Learning.[1] *I hope the Collaboratory might become a way to facilitate educational thought and action digitally, independent from the existing forms and structures for educational work. I do not here want to say much about the structure or function of the Collaboratory, but rather to express some ideas exemplifying concerns relevant to it as a means for putting liberal learning into action.*

According to an old saw about liberal learning, it arises through the pursuit of knowledge for its own sake. But that's easy to say yet difficult to do. What does pursuing knowledge for its own sake entail? Why is it difficult? What does the phrase mean? Enthused with high-minded principle, we easily find ourselves charting a path up the ever-branching academic ladder according to a preferred hedonic calculus; coping with ever-present assessment regimes; framing research to satisfy peer review and to win grants; planning courses with an eye to student needs, collegial sensitivities, and administrative expectations; publishing another paper, another book, in the pursuit of tenure, promotion, fame, perhaps even fortune. We produce knowledge for many reasons other than for its own sake.

I hope the Collaboratory for Liberal Learning can become a locus of

[1] In using italicized text to address those reading this text, primarily participants in PESNA 2018 and use *we*, *our*, etc., to indicate the community of scholars of which we are members. In the main parts of the essay in plain, non italicized text, I am addressing an inclusive, general audience, and use *we*, *our*, etc. to indicate it.

thinking and acting educationally for its own sake, without all these extrinsic motivations. For that to happen we need to finesse extrinsic motivations and act on the intrinsic purposes of education in sustained efforts. But we cannot implement such efforts according to a pre-planned blueprint; they need to emerge through recursive, adaptive activities.[2] *We start acting with a first approximation and a willingness to continue with successive effort with as much purposeful self-awareness as we can muster. With this idea in mind, the brief reflections that follow do not plan a course of action. Rather they many inform intentions guiding recursive initiatives we might take in learning liberally, for its own sake.*

These reflections, mini-essays in the light of Kant, are not at this stage fully developed. We might write many such essays in the light of many exemplars of learning liberally. All should aim to stimulate thinking and acting educationally for its own sake, without extrinsic motivations -- suggestive, possibly performative, not prescriptive. They should end with a pause for wonder, not a snap to action.

"Kant and the Public Use of Reason" explores his concept of the public use of reason, which I think overlaps significantly with the idea of pursuing knowledge for its own sake. Then, "Notes towards the Definition of Study" -- inspired a bit by T. S. Eliot and more by Kant's exploration of how persons construct experience of the external world by structuring inchoate data with an aesthetic of time and space and a logic of "the pure concepts of the understanding" -- ventures a first-pass at a set of concepts for constructing educational experience from the raw data of life. Finally, "On Supports for Study" explores analogies of pedagogical experience akin to Kant's analogies of experience, pedagogical characteristics that persons might be alert to as they pursue their self-formation for its own sake.

I expect these and other such mini-essays to remain work in progress. It may be a characteristic of pursuing knowledge and self-formation for its

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[2] Perhaps an excess of prelanned activity accounts for why organizations such as the Association of American Colleges & Universities, dedicated to advancing liberal education, produce work that often seems drained of the liberal spirit. Advancing the work of the organization supplants efforts to learn liberally as participants work to produce reports and programs furthering the cause, rather than engage in doing what they do for its own sake.

own sake that remains in progress until that possibility ends in death.[3] *From time time time I will interject italicized observations as place holders for further development of the text.*

Kant on the Public Use of Reason

> ... in heaven, … perhaps, a pattern is laid up for the man who wants to see and found a city within himself on the basis of what he sees. It doesn't make any difference whether it is or will be somewhere. For he would mind the things of this city alone, and of no other. Plato, *Republic*[4]

Part of Kant's enduring relevance arises from his realism about despotic power.[5] In his answer to the question, "What Is Enlightenment?", he praised the rule of Frederick the Great, which permitted freedom of expression in religious matters and even some in matters political, while requiring obedience in action from his subjects. That sufficed, Kant thought, for the eventual emergence of an enlightened condition for all.[6] Let's do something dangerous and try to see Kant's satisfaction with Fredrick's despotism, not as a deficiency of democratic commitments, but as sound basis for thinking and acting educationally.

Dreams of democracy did not shape Kant's judgment. We should perhaps follow this example, for our democracies may be more despotic than we are want to think. Without forcing the matter too much, we can

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[3] Suggestively, the authors of many great expressions of learning liberally kept them in continuous revision or died feeling they were incomplete or imperfect, leaving them for posthumous publication -- Vergil's *Aenid*, Chaucer's *Canterbury Tales*, Erasmus's *Adages*, Rabelais' *Gargantua,* Spenser's *Farie Queen*, Montaigne's *Essays*, the poetry of Emily Dickinson, Butler's *Way of All Flesh*, much of Kafka's corpus, Musil's *Man without Qualities*, etc., etc. Of course, premature death and fear of opprobrium or worse accounts some delays in publication, but writing despite fear of publication increases the likelihood that the author is doing it for its own sake.

[4] *The Republic of Plato, 592b,* (Allan Bloom, trans., New York: Basic Books, 1968) p. 275.

[5] Despotism, absolute power, can be more or less tyrannical. If can incorporate a rule of law and honor, as in "among thieves" and with all sorts of groups that possess an *esprit de corps*, or churn about in an *ad hoc* chaos.

[6] See Immanuel Kant, "What Is Enlightenment?" in Kant, *Practical Philosophy*, (Mary J. Gregor, trans., 1996), p. 21.

observe that the age of democratic revolution marked a great divide in educational theory. Thought and practice came to dwell less on the problem of achieving autonomy, personal and collective,[7] while living under under despotic rule and took up the challenge of educating the person and the polity for democratic life.[8] This shift rested on an historical materiality: principles of heredity as a means of transferring power contracted and those of codifying powers and voting on representatives to exercise them expanded.[9] Call it democracy, but we should ask more deeply than we do whether the actual powers codified and exercised have significantly changed as a result.

With a present-day perspective, interpreters easily criticize the German *Aufklärung* in general and Kant in particular as excessively apolitical, capable of a brief enthusiasm for the American and French revolutions yet content throughout to follow the despotic stricture, "Obey!" Kant quite explicitly espoused this outlook in his reflections on enlightenment, praising the despotism of Frederick the Great for permitting the free expression of thought provided his subjects willingly obeyed. Is our condition so very different under the Constitution with its First Amendment? Do we not often experience the functioning of our political and economic and social systems as despotic, requiring behavior contrary to what we believe desirable and right, to which we nevertheless obey for want of a plausible alternative? True; a few emigrate to Canada, an age-old answer to despotic excess. But far more often we find ourselves in an alienated condition, pervasively subject to the exercise of power in politics, at work, and in diverse institutions with which we dissent, unreconciled, but obeying all the same.

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[7] Plato, Aristotle, the Stoics and Epicureans, Erasmus, Montaigne, Rousseau, among many others, provide important examples of this presupposition. Eminent Judaic and Christian thinkers do as well when they present their ideas as resources for achieving full humanity as distinct from asserting doctrine as a set of required beliefs.

[8] This challenge of educating the person and the polity for democratic life has become pervasive. John Dewey, Amy Gutmann, and Nel Noddings exemplify it with persuasive authority; see *Democracy and Education*, 1916; *Democratic Education*, 2nd. Ed. 1999; and *Education and Democracy in the 21st Century*, 2013.

[9] This shift has been prominent not only in governmental structures, but in economic and social organizations.

For many reasons, I prefer living under our 21st-century despotisms than under those of the *ancien régime*, not least because I'm living here and now, not there and then.But I do not accept the democratic complacency that the established order *merits* our allegiance in the processes of education. These are processes through we form ourselves as humans and as humans we have to realize our full, autonomous humanity, personal and collective. For doing so, Kant voiced purposes more important and challenging:

> *Enlightenment is the human being's emergence from his self-incurred minority*. *Minority* is inability to make use of one's own understanding without direction from another. This minority is *self-incurred* when its cause lies not in lack of understanding but in lack of resolution and courage to use it without direction from another. *Sapere aude!* Have courage to make use of your own understanding! is thus the motto of enlightenment.[10]

Freedom to reason publicly would best sustain efforts to emerge from self-incurred minority, immaturity, a lack of autonomy, Kant asserted. Kant recognized that most people faced numerous impediments to being fully able to speak for themselves -- most women had no legal rights to do so and a hierarchical, class society pressured both many men and women to defer to voices of power. Nevertheless, Kant thought that people had the power to think and speak for themselves, but they needed strong resolve and courage to do so. In his view, a process of enlightenment would ensue as "a few independent thinkers" asserted their reason publically,

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[10] Kant, "What Is Enlightenment?", p. 17. Translating into English Kant's thought in these sentences and those that immediately follow presents difficulties. Gregor uses *minority* and *majority* to render Kant's *Unmündigkeit* and *Mündigkeit*, and others use *immaturity* and *maturity*. Neither quite does the job, for at root *Mündigkeit* meant *capable of speaking for oneself*, and the DWDS (Digitales Wörterbuch der deutschen Sprache, https://www.dwds.de/) gives synonyms of Autonomie (autonomy), Eigenständigkeit (self-reliance), Selbstbestimmung (self determination), and Selbstständigkeit (independence).

Why do elected legislators, each well schooled, representatives of diverse constituencies, toe the line of their leaders' talking-points and vote predictably as a partisan mass?

disseminating “the spirit of a rational valuing of one’s own worth and of the calling of each individual to think for himself.”[11]

Kant averred that "freedom to make public use of one's reason in all matters” would over time have an enlightening effect, enabling more and more persons to raise themselves out of their self-incurred minority. He understood minority as an “inability to make use of one’s own understanding without direction from another,” and he thought people self-incurred it through “the lack of resolution and courage to use [their understanding] without direction from another.”[12] Everyone had the power to think for themselves. Achieving an enlightened age in which everyone in fact did so -- a far off ideal -- required more and more examples of people thinking without direction from another, which would inspire the resolution and courage in others to do so in their turn.

We now easily fail to grasp the power Kant attributed to the public use of reason. The public use of reason meant something different from simply speaking up in the marketplace of ideas. For Kant, the public use of reason constituted one pole of an ideal-type tension between reason´s public use and its private use.[13] The private use of reason did not involve some hermetic sorcery. As communication, the private use of reason addressed a multiplicity of recipients. But as modes of reasoning, thinking and feeling privately proceeds within some given boundaries -- those of an office, a status, a role, a persona, or an identify, which significantly shape the reasoning. All but the most privileged among us have jobs to do, and even the most privileged must defend their privileges, not simply

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[11] Kant, “What Is Enlightenment?”, pp. 17-8.

[12] Immanuel Kant, “What Is Enlightenment?” (1784), Mary J. McGregor, trans., in Immanuel Kant, *Practical Philosophy* (New York; Cambridge University Press, 1996), p. 11.

[13] From our perspective, particularly using English rather than German, Kant’s distinction between the public and the private use of reason engenders some confusion because the prime examples of the private use of reason all take place in highly public settings. They are private in the sense that private enterprise or property is private. Personal privacy versus publicity has little to do with the distinction. *Öffentlichkeit*, the public sphere, has great inclusiveness, “als Gesamtheit gesehener Bereich von Menschen, in dem etwas allgemein bekannt [geworden] und allen zugänglich ist,” as the totality of the observable human domain, in which anything is generally known [apparent] and accessible to all. *Öffen* and “open” are basically the same word as in the English expression “open source.” Öffentlichkeit” is the “open sphere” as distinct from closed spheres.

assume them. Private uses of reason take place as persons reason within such bounded expectations.

In Kant's time and ours, numerous private purposes, the purposes that set people apart in endless subgroups, click in as people consider and discuss matters. How often do those of us working in educational institutions shape what we say and teach according to professional, institutional, and governmental norms, expectations, and requirements? Kant would have no problem with our doing so as long as do not contravene our considered thoughts and convictions. If we find ourselves compelled to violate those, we ought to resign our posts. But he thought one's work within a role would normally leave one free to have and express views addressed to the public sphere that differed with those fit for the private spheres, views one could and should express freely, autonomously, making use of one's own reason to “speak to the public in the strict sense, that is, the world.” An enlightening effect follows when someone uses his own reason "as a member of a whole commonwealth, even of the society of citizens of the world, and ... in his capacity [as] a scholar who by his writings addresses a public in the proper sense of the word."

We must leave moot the question whether the public use of reason could have had the effects Kant envisioned: a progressive enlightening through the free use of public reason eventually bringing to fruition an enlightened age. Living in a despotic times, Kant wrote aspirationally. Communications developments in late 18th-century German lands were such that he could aspire, for himself and others, to speak as a member of the whole community, even of the society of citizens of the world. He was aware of difficulties, without doubt insufficiently so,[14] but he participated, self-aware, with others in the public sphere, attempting to further enlightenment through the public use of reason. Together, over several generations, they had inspirational effects moving historical action in progressive directions. But as Habermas and others have shown, the public sphere also changed significantly. Which, ignoring a heap of complications, leads to the practical question for our time.

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[14] Looking back, we tend to criticize past thinkers for the ways in which they fell short relative to subsequent achievements. Those thinkers, however, lived prospectively, trying to leaven the batter of possibility, with change accumulating recursively through the sequence of conditioned, circumstantial efforts.

How can intellectuals in the early 21st century aspire to the public use of reason? Many of us have thought, or think, that we use public reason in our work through institutions of education, particularly in universities and research organizations. I've spent much of my career acting as if that were true, as if it were a potentiality that we might bring about by acting insofar as possible in accordance with it. I've been around long enough to see that wish recede further and further towards implausibility. All sorts of OK things -- peer review, departmental and disciplinary organization, raising standards of competence and promoting mobility between institutions -- and lots of not-so-OK things -- external accountability regimes, the inexorable growth of overhead, mortgaging the system through student debt, over-publication and over-specialization for fear of scholarly mortality -- shuffle academic discourse into a multiplicity of private spheres. The public sphere seems shattered into an incoherent multiplicity of private spheres.

Kant believed that enlightenment required only the public use of reason in all matters. I can grasp fairly clearly what Kant meant by the private use of reason, but I have difficulty pinning down the clear meaning of the public use of reason, which he understood as "that use which someone makes of it as a scholar [as Emerson's person thinking] before the entire public of the world of readers." What did reasoning as a scholar before the entire world of readers entail as Kant understood it that would set it apart from the private use of reason, employing the assumptions and conventions of one or another group of readers? Both the *Gelehrte*, a learned person, and the *Leserwelt*, the world of readers, an inclusive assemblage of learned persons, were ideal-types, then difficult to approximate in realities and now probably quite impossible to realize. I think, however, implicitly through the terms, Kant was calling for a high level of detachment and generality in reasoning, a drive for *Allgemeingültigkeit,* universal validity but less in the logical sense and more in that of effective in all situations, generally in force. The public use of reason concerned ideas and propositions applicable not in special instances of some concern, but to all possible occurrences of it.

Let's put a question to ourselves and move on, resolving to hold the question in abeyance, awaiting further reflection, as we explore another matter in the light of Kant. The question: What relation does the use of

public reason by writers and an active, inclusive audience of peers, all seeking ideas that stand up with reference to any and all instances of a matter, have to do with learning liberally?

Let's hold that question, not putting it out of mind, but rather keeping it in the periphery of our attention while we turn to a different immediate concern, namely an attempt to specify a set of concepts sufficient for generating all possible forms of educational experience.[15] *I try to do it in a Kantian spirit, but without having yet ventured to emulate Kant's systematizing drive. Additionally, I need to preface the effort with some stipulation about what I understand "educational experience" to consist in, for it departs from the understanding implicit in most contemporary discussion of education.*

*In order to ask in Kantian fashion -- "How is educational experience possible?" -- we need to be clear what sort of experience it involves and I like here to simply stipulate without trying to fully give my reasons that educational experience involves the experience of acquiring characteristics. There is no "*nature versus nurture*" in educational experience, for we experience what might be nature in the process only through our nurture of it. If educational experience consists in acquiring characteristics, it follows that the experiential actuality is that of the acquiring agent, the inward locus of perception and action with which the agent controls the (well or ill) the process of acquisition. This stipulation has consequences for how we should try to talk about educational experience.*

For instance, most discourse about education attends to "teaching and learning" as a central concern. I think that teaching as a primary for of educational action lies outside the bounds of possible educational experience, for it is not what the teacher does as such that determines the acquiring of anything, but how the agent receives and construes the teacher's actions; we need to attend to "learning and teaching," as much good learning theory does. A full understanding of educational experience

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[15] We might eventually refine the set into "the pure concepts of cultural acquisition" in parallel with Kant's categories, " the pure concepts of the understanding." The adjective "pure" translates "rein," which in addition to meaning "pure" has connotations of "clean," "sheer," "unadulterated," "immaculate." These are concepts cleanly applicable to any experience, bringing with them none of the prior specifics of this or that particular experience.

should generate as Kant's critiques do, both a Lehre*, a sound doctrine, a set of tenets, and a* Dialektik*, a clarification of deceptive appearances commonly accepted. I intend what follows as a preliminary draft of a part of a critique of educational experience that would serve a function analogous to Kant's Analytic of Concepts in the* Critique of Pure Reason*. Thus it would be a part of a* Lehre *or doctrine of how humans construct their experience of acquiring characteristics.*

Notes toward the Definition of Study

> It is the mark of an educated man to look for precision in each class of things just so far as the nature of the subject admits. Aristotle, *Nichomachean Ethics*[16]

Here are some definitions that may help clarify how educational experience is possible. Such experience takes place in and through an agent acquiring characteristics. I set forth the concepts with attention here neither to nuance nor amplification. I want them to achieve *Allgemeingültigkeit*, being discernable in any and all educational experience and effective in elucidating what the agent does in any particular educational experience. Additionally, the concepts should be effective in common ideas about education involve matters outside the scope of possible educational experience, usually by attributing effective agency to actors external to the actual acquisition taking place.

In principle, the bare definitions should make a systematic ensemble, but I have not worked out the principles that would organize them. As presented, part of the meaning of each concept arises from elsewhere in the set. Unfortunately, they must be written or read in some order. Indeed, their sequence has some meaning, but some terms ineluctably appear in a definition of another before its definition appears on the page. Hence, one must read them through, once, to get all in the set in mind; then one can read them through again, grasping their reciprocal interactions, critically assessing each in the context of the entire set.

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[16] Aristotle, Nichomachean Ethics,1094b24-5, W. D. Ross, trans., in Jonathan Barnes, ed., *The Complete Works of Aristotle* (Revised Oxford translation) Princeton: Bollingen Series LXXI:2, 1984, vol. 2, p. 1729

These definitions are epistemic, not ontic. Ontic definitions answer a What-Is question. Epistemic definitions enter into answering How-Do questions. One tests epistemic definitions by using them to build up sound understandings of how phenomena take place. The purpose is not to define in some lifeless abstraction *what education is*. That is a given -- living organisms acquire characteristics in the course of their living. How do they make that possible in their life experience? The purpose is to define how we think about what the education *that we make, how we determine what we That is a given -- living organisms acquire characteristics in the course of their living. How do they make that possible in their life experience? can and should be*. We have here a preliminary table of categories in a critique of educational thought, one done in the spirit, if not syntax, of Immanuel Kant.[17]

The Pedagogical Process

Culture

One's culture comprises all capacities, skills, and cultural characteristics, all that the agent acquires through life experience. Even biological endowments develop from inception on through a significant admixture of culture.

Education

The processes by which an agent creates and acquires culture.

[17] In my use of Kant in this essay, I intend to be neither nostalgic nor anachronistic. For our purposes here, Kant should be taken as a living presence. Kant is to pedagogical design as Newton is to aeronautical design. Although physics has progressed far beyond Newton's version of it, his version is still the one appropriate for describing the flight of airplanes. In a similar way, although epistemology has progressed far beyond Kant's version of it, his critiques still give us tools appropriate for describing educational relationships.

Pedagogical Agents[18]

Inquirer

The person who experiences education. *Learner* might serve as well here, especially for the acquisition of conventional information, ideas, and values. *Inquirer*, however, stresses generality and includes place in educational experience for all a person's acquirements and extensions through them expanding culture.

Pupil

An inquirer who assumes that the relevant domain of the mentor is its universe.

Student

An inquirer who believes that the relevant universe may exceed the domain and horizon of the mentor. (Note: the modifier "relevant"here implies that existentially a person can simultaneously be a pupil in some things and a student in others.

Mentor

A person or persons formally or informally helping an inquirer in the acquisition of culture. *Teacher* might serve as well, but we need it for a more specialized meaning. *Educator* serves as an encomium for a mentor of high repute.

Teacher

A mentor whose domain in an educational process includes and exceeds that of the inquirer, e.g., the teacher knows the subject better than the student.

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[18] I think with some adaptation these concepts apply in the phenomenal experience of all living agents, but developing that would lead far afield. Hence, I frame the concepts with respect to the educational experience of human agents and I take that to take place in the phenomenal experience of human persons, each in their full complexity. I think we can in a secondary sense speak about the educational experience of human polities in which a identifiable active agency effectively controls what the polity does. I do not think we can coherently speak about either individuals or societies having experience as these terms serve as descriptive abstractions by which we glom together observed characteristics.

Coach

A mentor in an educational process in which the inquirer's domain includes and exceeds that of the mentor, e.g., the player can outperform the coach.

Pedagogical Space

Domain

The person's cultural resources directly involved in the educational experience taking place: the educational attainments available as grounds for the inquirer's current educational effort. Each inquirer and each mentor has a unique domain that has morphological continuities to those of everyone else.

Universe

All possible cultural resources that an inquirer might master in the full course of her education. A person's universe becomes manifest through the sum of her experience, waxing and waning through the life course.[19]

Horizon

The portion of the inquirer's universe that her domain enables her to perceive. The horizon includes what the inquirer knows, her domain, plus what she knows she does not know, the part of her universe of which she is aware yet outside of her domain.

Perspective

The portion of the inquirer's universe that the mentor's domain enables him to perceive or vice versa. Note the cross-over here: perspective involves the mentor's view of the inquirer's domain or the inquirer's view of the mentor's domain. Imperfect perspective on the part of inquirer or mentor leads to much confusion in educational experience.

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[19] We blandly assume that educational experience is positive, as in Dewey's "education is growth." Educational experience is not only positive but frequently negative, for instance as a person believes falsehoods, experiences trauma, loses important memories, or becomes depressed. Vices are as much personal acquisitions as virtues.

Pedagogical Purpose

Objective

The particular capacities, skills, acquisitions that an inquirer seeks to master through an educational experience, that is, the specific culture the inquirer seeks to create or acquire in an educational experience. An inquirer can formulate an objective only about matters within her horizon.

Intention

A general aim in an educational process arising from the inquirer's sense that all specific objectives evident within his horizon do not exhaust the possibilities of his universe.

Note:

A common pedagogical difficulty arises when the perspective of the mentor leads him to define something as an objective when the horizon of the inquirer is such that she can only pursue it as an intention.

Pedagogical Outcomes

Development

An educational process that extends the inquirer's domain further towards her horizon. Development can purposefully result from the pursuit of both objectives and intentions.

Discovery

An educational process that extends the inquirer's horizon further into his universe. Discovery can purposefully result from the pursuit of intentions, but not objectives. Serendipitous discovery can result from the pursuit of objectives when the unexpected happens and the inquirer responds intentionally to the possibilities it reveals.

We need several sub-definitions because the domains of the inquirer and the mentor overlap but do not coincide. How their domains overlap distinguishes between different ways people can participate in educational processes.

We also need several sub-definitions because the objective of an educational process may refer to the pertinent domain, or beyond the domain to the broader horizon. Where the objective stands in relation to

domain, horizon, and universe distinguishes between different forms of education.

Education as acquiring culture.

Acculturation

Mastering available capacities, skills, and acquisitions that differ from those set by the objectives of the educational experience.

Training

An educational experience in which the objective lies within the domain of both the inquirer and the mentor, for instance when a tool or procedure is a given for both trainee and trainer, and the latter must ensure that the former masters its use.

Instruction

An educational process in which the mentor believes that the objective lies within his domain and within the horizon of the inquirer. The instructor must impart the skills and knowledge he possesses so that the inquirer acquires them as part of his domain. Instruction can result in training or learning.

Learning

An educational process in which the inquirer believes that the objective lies within her own horizon and within the domain of the mentor. Learning can result from training or instruction.

Education as the creation of culture

Research

An inclusive educational process in which the inquirer pursues an objective within her horizon, without direct help from a mentor.

Study

An inclusive educational process that results as an inquirer pursues intentions, with or without operative objectives, with or without the help of a mentor.

Note:

An inquirer can engage in study during training, learning, and research, all of which derive their teleological structure from objectives. Study is a responsiveness to intentions either in the midst of work towards objectives or as unstructured pursuit of felt intentions. Objectives point to specific goals within the horizon; intentions to unspecific possibilities within and beyond the horizon.

As with our reflections on Kant's ideas about the public use of reason, let's leave these "pure concepts of cultural acquisition" *in this tentative, undeveloped form, suspended for subsequent improvement. Kant thought that all people constructed their phenomenal experience by construing the given raw data, situating it in a conceptual space and time and synthesizing the situated data using the pure concepts of the understanding to make synthetic a priori judgments, judgments that construed the raw data into apprehended experience. Very careful, well-prepared, patient readers find* The Critique of Pure Reason*, through which Kant analyzed and presented about how phenomenal awareness took place, extremely difficult. But we should not lose sight of the fact that the construction of phenomenal awareness that he analyzed was something that any and every person works at, generally quite successfully. His text is seriously esoteric, but it concerns everyday, ordinary experience, common to us all.*

In the first critique, addressed the linkage between his difficult analysis of the pure concepts of the understanding and the ordinary awareness of the external world that everyone seems to acquire and share. As Kant saw it, the living person starts facing a jumble of impressions -- as William James later put it, the infant, "assailed by eyes, ears, nose, skin, and entrails at once, feels it all as one great blooming, buzzing confusion." Kant contended that for everyone and anyone, "experience is possible only through the representation of a necessary connection of perceptions." And he observed that anyone and everyone used three types of necessary connections to construct their experience of the external world -- the persistence of substance, cause and effect, and simultaneous interaction. The beer the barman poured over there a few moments ago is the same beer in the mug in front of me; raising the mug to my lips, tilting it, and swallowing has the effect of my drinking

some of it; looking my companion in the eye as we raise our mugs and click them together reinforces a bond of camaraderie. Necessary temporal connections of persistence, sequence, and simultaneity are necessary elements of these experiences and relative to lived experience Kant arrived at his analysis of the pure concepts of the understanding in an effort to explain how the necessities inherent in the experiencing arose, accounting for the possibility of the experiences. Why bother? Because without understanding what makes experience possible, we all too easily believe in the actuality of impossible experiences, connections outside the bounds of possible experience.

In the next mini-essay, I want to reflect on five experiential forms of educational experience, of acquiring culture. I will introduce these very much in the ordinary language of everyday experience. I think we can and should, in the spirit of Kant, work back from a clear understanding of what happens in acquiring culture in these ways, improving our pure concepts of cultural acquisition. Doing that, I think we can and should become cognizant with much greater confidence than at present about what sorts of apparent educational experience lies outside the bounds of possible experience. What follows may initiate such an effort, but it falls far short of fully achieving it. Beginnings, however, are necessary.

On the Pure Principles of Study

In leading up to this mini-essay, I have concentrated on the three analogies of experience in Kant's first critique. The second and third critiques also each have an analogy of experience and in this section I write with the five implicit in the background. But as all five are features of ordinary experience common to all of us, I make little reference to Kant's texts. Thus in this section, I am trying to indicate what kind of necessary connections in sensed data do people make as they are acquiring culture. In doing this, I am using Kant's texts, not as sources of authority, but as heuristics, and I am rather skeptical that the five forms of educational experience that we might identify with a Kantian heuristic exhaust the possibilities. But the five are a good place to start and cover substantial ground.

Let's ask, What principles, applicable to any and all instances of study, yield the necessary connections making educational experience possible, enabling subjective selves to acquire their cultural characteristics?

Study results when the inquirer pursues intentions in addition to the operative objectives. Intentions suggest to the inquirer that the universe harbors more possibilities than those charted by the operative objectives. Intentions arise because the inquirer intuits that interesting possibilities exist beyond the horizon. Study guided thus by intention is an openness to possibility, a readiness to respond to it. We need to understand how people respond to possibility, how they move from the known to the unknown.

Let us reflect on five ways of extending the cultural horizon into the universe—recognition, production, control, commitment, and selection. I do not suggest that people use only these five capacities to respond to possibility. I do not pretend to give an exhaustive account of the modes by which people can move beyond their horizons into the realm of unperceived possibilities. Likewise, I do not suggest that people use these five capacities exclusively in intentional activities. Quite the contrary, people may use these capacities also in learning, in pursuing objectives.

Our interest here, however, is in understanding how people use these principles in pursuing intentions, possibilities beyond their horizon that they cannot define precisely as objectives. Let's briefly introduce the five and then return to reflect on these capacities to begin developing the principles of study.

***Recognition*.**

This is the "Ah ha!" experience, the sudden awareness that in the buzzing confusion something substantial, identifiable inheres. An objective may activate recognition. For instance, if you ask June to find Jim to tell him that you need his help, she will have the objective of recognizing Jim. But much more often recognition arises in response to a general intention. Thus, when I'm walking down the street thinking deep thoughts and I see a familiar face which I suddenly recognize as Jim's, I recognize Jim, not by objective, but by intention. Intention, a responsiveness to possibility, most deeply guides recognition of something new, something hitherto vague, murky, incoherent. Recognition often involves attaching a name to a perception, linking it to a noun, a

"substantive," a word that calls attention to the substantiality of the object of perception.

***Production*.**

This is the "Look, Ma!" experience, the activation of a causal sequence to the point of suddenly doing something one could not do before. Like recognition, production also can be done by objective, as often occurs in offices and factories where managers have carefully planned the causal sequence to come to a well-specified conclusion. But frequently people produce works in response to an intention in which the precise outcome is fuzzy, the result creative as in artistic work. Simple speech gives us endless examples. Under certain circumstances, diplomats and lawyers may shape an utterance precisely according to a conscious objective. Most of us, most of the time, in contrast, produce our utterances more spontaneously in response to our intentions, sometimes surprising ourselves on discovering what it was that we really had to say. What is true of speech is true of most creative making: the maker has intentions and produces unexpected results through the sequence of causalities that translate the intention into a completed work. The sequence carries the maker beyond her prior horizon.

***Control*.**

This is the "I got it!" experience, the maintenance of complex interactions in a dynamic equilibrium that one can steer or guide in useful ways. Many examples of control involve objectives, like the simple thermostat that keeps room temperature close to the objective set for it. But many other examples of control equilibrate around intentional goals, states of mind and states of being—curiosity, fun, health, happiness, fulfillment, influence, power, love. Control consists in the capacity to maintain approximations of these states. Efforts to maintain control are deeply, integrally intentional because one cannot limit the significant interactions to the predictable ground within one's horizon.

Control often overlaps with production, but they are conceptually distinct. Production results from a distinct sequence of causes and effects; control manages a complex of reciprocally interacting simultaneous influences. Take riding a bicycle as a simple example of the overlap. Peddling the bike forward is a clear example of production. Most

anyone can effectively explicate the sequence of causes and effects that move the bike forward. Balancing the bike is the example of control. Few people can clearly explain how they do it and it depends heavily on the cyclist's ability to coordinate multiple senses to register the reciprocal interaction of many forces, continually wielding those he can to shift the center of mass of the system towards the direction of fall.

***Commitment*.**

This is the "Here I stand!" experience, the conviction that this or that course of action is worthy and right regardless of the immediate consequences that will come of it. One can form objectives while carrying out a commitment. But insofar as a commitment is a conviction that something is right independent of the specific results that come of it, commitment IS an intentional act, one that does not reduce to a set of objectives. The person acting from commitment reaches beyond his horizon to take a stand in a world in which foreseen consequences cease to matter. The committed person acts simply because he experiences the intention entailing his action as right, as worthy of action.

***Selection*.**

This is the "It fits, it suits me!" experience, the formation of preferences through judgments about form and beauty. Selections can be managed according to objectives, otherwise major industries—cosmetics, advertising, public relations—would not exist. Yet selection more deeply offers individuals and groups the opportunity to express their intentions. We might say that people choose in response to their conscious objectives, but that very often they find that these do not suffice to effectively discriminate between the available alternatives. At that point, people select through judgments that reflect their intentions, their sense of possibility, an ineffable sense of form, fit, beauty, compatibility.

Let us summarize the essentials as they have so far unfolded. Education is the process by which people create and acquire culture. At any particular time a person has a domain, consisting of previously mastered culture, and a horizon inside of which he perceives things that he knows he does not know. Cultural possibilities within his horizon can serve as his objectives for learning. In addition to his horizon, he has a

more encompassing universe in which there are cultural possibilities that he does not perceive distinctly but that may nevertheless be very significant possibilities for him. Intentions are general aims that a person senses, suggesting that all his current objectives do not exhaust his possibilities and that, in addition to the objectives, those possibilities are worth pursuing.

As with our reflections on Kant's ideas about the public use of reason, let's leave these "pure concepts of cultural acquisition" *in this tentative, undeveloped form, suspended for subsequent improvement. Kant thought that all people constructed their phenomenal experience by construing the given raw data, situating it in a conceptual space and time and synthesizing the situated data using the pure concepts of the understanding to make synthetic a priori judgments, judgments that construed the raw data into apprehended experience. Very careful, well-prepared, patient readers find* The Critique of Pure Reason, *through which Kant analyzed and presented about how phenomenal awareness took place, extremely difficult. But we should not lose sight of the fact that the construction of phenomenal awareness that he analyzed was something that any and every person works at, generally quite successfully. His text is seriously esoteric, but it concerns everyday, ordinary experience, common to us all.*

In the first critique, addressed the linkage between his difficult analysis of the pure concepts of the understanding and the ordinary awareness of the external world that everyone seems to acquire and share. As Kant saw it, the living person starts facing a jumble of impressions -- as William James later put it, the infant, "assailed by eyes, ears, nose, skin, and entrails at once, feels it all as one great blooming, buzzing confusion." Kant contended that for everyone and anyone, "experience is possible only through the representation of a necessary connection of perceptions." And he observed that anyone and everyone used three types of necessary connections to construct their experience of the external world -- the persistence of substance,

cause and effect, and simultaneous interaction. The beer the barman poured over there a few moments ago is the same beer in the mug in front of me; raising the mug to my lips, tilting it, and swallowing has the effect of my drinking some of it; looking my companion in the eye as we raise our mugs and click them together reinforces a bond of camaraderie. Necessary temporal connections of persistence, sequence, and simultaneity are necessary elements of these experiences and relative to lived experience Kant arrived at his analysis of the pure concepts of the understanding in an effort to explain how the necessities inherent in the experiencing arose, accounting for the possibility of the experiences. Why bother? Because without understanding what makes experience possible, we all too easily believe in the actuality of impossible experiences, connections outside the bounds of possible experience.

In the next mini-essay, I want to reflect on five experiential forms of educational experience, of acquiring culture. I will introduce these very much in the ordinary language of everyday experience. I think we can and should, in the spirit of Kant, work back from a clear understanding of what happens in acquiring culture in these ways, improving our pure concepts of cultural acquisition. Doing that, I think we can and should become cognizant with much greater confidence than at present about what sorts of apparent educational experience lies outside the bounds of possible experience. What follows may initiate such an effort, but it falls far short of fully achieving it. Beginnings, however, are necessary.

In leading up to this mini-essay, I have concentrated on the three analogies of experience in Kant's first critique. The second and third critiques also each have an analogy of experience and in this section I write with the five implicit in the background. But as all five are features of ordinary experience common to all of us, I make little reference to Kant's texts. Thus in this section, I am trying to indicate what kind of necessary connections in sensed data do people make as they are acquiring culture. In doing this, I am using Kant's texts, not as sources of authority, but as heuristics, and I am rather skeptical that

the five forms of educational experience that we might identify with a Kantian heuristic exhaust the possibilities. But the five are a good place to start and cover substantial ground.

Intentionality and Design

Intentions can be powerful motivators in the creation and acquisition of culture because the person intuits that it is worthwhile to be receptive to prospects that are significant yet indistinct. We have defined study as an inclusive educational process that results as an inquirer pursues intentions, with or without operative objectives, with or without the help of a mentor. It is educational effort motivated by intentions. I further suggest that five significant forms of activity in which intentions, as distinct from objectives, can be highly significant are recognition, production, control, selection, and commitment. Educational systems designed to make study fruitful will challenge people to use their capacities fully to recognize things (actual and potential), to produce works, to manage systems, to judge fitness, and to affirm principles. How? One item that we have not yet defined is design itself. How should we think about design in order to make sense of the infinite particularities of it?

Design

A process through which people use epistemic definitions, criteria, and models to shape the stuff of experience to accord more closely with their knowledge, principles, and preferences.

Design builds conceptual understanding into the world we make. "Art is long, life short, judgment difficult, opportunity transient. To act is easy, to think is hard; to act according to our thought is troublesome."[2] Design is that troublesome effort to act according to our thought; it makes judgment easier and opportunity more stable.

Take any example of design. Central to it will be an effort to render the work knowable, understandable, predictable in one way or another, to imbue it with affordances. What drives the design of a tool, simple or complex? The user wants to know that the tool will work for the purpose which guided its design. The worker gets angry at his tool when it fails at the task for which it was designed and abashed when he breaks it trying to use it for some purpose for which it was not designed. Materials design serves to make the performance of materials knowable, predictable.

Handbooks of specifications and standards give ready access to the knowledge built into such materials, clear statements of the stresses they will bear. Manufacturing design serves to make the outcome of production predictable, foretelling both the character and quality of the product and, even more, making its cost knowable, an essential component in designing its marketing.

Design, understood as action that embodies knowledge in the stuff of life and matter, holds a fundamental place in our culture. Hume and Kant destroyed metaphysics, ushering in the era in which epistemology has primacy over ontology. Increasingly, people recognize all the sciences to be cognitive sciences, describing the world that our knowing reveals, giving an account of how and why we know it, and adopting a principle of uncertainty about all the rest. The positive test, complementing the negative one of falsification, is not verification, but suitability as grounds for design, if not of practical applications then of further cognitive experiments and explorations.[3] Hegel laid down the ontology of the emergent universe-by-design that the human spirit makes as its habitat. "What is rational is actual and what is actual is rational."[4] This is absurd if said willfully about things in themselves and the random flux, but it makes fine sense said, as Hegel said it, about a reasoning spirit that draws itself out of itself, that educates itself, to design itself as the actuality of the inchoate chaos. So too, Kant's claims about a synthetic a priori, in which propositions are at once prior to experience but substantively informative about experience, make simple sense in the context of design. Categorical principles are prior to experience but informative about it because we can act with those principles to design the experience, to give it human form, substance, and significance. Kant’s critical philosophy, deeply constructivist in character, difficult, analyzes our imperfect ability to act according to our thought.[5]

Through design for study, we will use our conception of study as intentional inquiry to shape the stuff of educational practice. We will not do that by pinioning study on the prongs of pedagogical objectives. Study occurs when students expand the apparent objectives with their own intentions. Study is something that students do; it happens when their intentions expand our objectives. Design for study will be a complement to instructional design, not an alternative to it. Educators can use instructional design to promote learning, but they can additionally design

educational systems so that they will be responsive to study. As understanding of design for study develops, we will see that it serves as a significant resource in improving the cumulative instructional effectiveness of educational systems.

Through our definitions, we have identified two levels of study. One level we might call unconditional study. It is a level at which the student extends her horizon into hitherto uncharted possibilities, possibilities that not even the wisest mentor can then perceive. This is study as enshrined, say, in the Princeton Institute for Advanced Study. Educators cannot do much to provide directly for such study, except to furnish suitable opportunities, tools, and resources. All the same, the provision of such opportunities, tools, and resources makes a big difference to the person engaged in unconditional study. Furthermore, since conditional study, from the vantage of the person engaged in it, differs little from unconditional study, provision of such assistance proves to be the basic principle of design for study. Happily, however, mentors will find it easier to identify which opportunities, tools, and resources will be suitable for students engaged in conditional study.

Most often, study occurs conditionally. Here the student extends his horizon into possibilities that more accomplished mentors can plainly perceive. A teacher might define the outcome of conditional study clearly as an objective, but the student's achievements are such that he cannot yet firmly grasp it as such. Examples abound: all learning problems that turn on developmental discrepancies between the instruction offered and the readiness of pupils to absorb it. In such situations, which are frequent, a good educational system will provide both instruction and opportunities, tools, and resources for study. Provisions for study will complement programs of instruction. Indeed, we will show that good provisions for study will make instruction more effective by reducing the burden on instruction and by enhancing the students' readiness to learn.

Toward a Technology for Study

How should educators design provisions for study? What opportunities, tools, and resources should they develop? When studying, the student follows her intentions. Let us look again at the five modes of

intention introduced above—recognition, production, control, selection, and commitment. Each of these modes of intention correlates with types of knowledge and thinking. Good design for study will clarify what these are and then ensure that a rich selection of them surrounds the student. In the last section, we will touch on how these modes of *a priori* synthetic construction help to elucidate the potentialities and limitations of various educative experiences. The first three derive from Kant's Analogies of Experience in the first critique, and the last two from the experiential contexts Kant assumed in the second and third critiques on practical reason and on the power of judgment.

Materials for Recognition

To begin, therefore, we need to provide students with opportunities, tools, and resources for spontaneously exercising their powers of recognition. How do we do this? We need to provide a rich surrounding of conceptual definitions and examples along with fields of activity where they are in significant use. The problem here is to create a cultural environment that will promote concept formation by students. The world confronts people with a flux of appearances, a buzzing cacophony of sounds, an ever-changing sequence of sensations. "Ah ha! Here is a thing, here is a word, here is a situation. I recognize it and I am beginning to understand how to use it." Recognition exploits the principle of permanence as Kant developed it in the first of his analogies of experience. We can reason about experience, whatever its sort, because we postulate that "in all change of appearances substance is permanent," something is there through changing states about which we can think. Seeing that stability, that permanence of substance, the student recognizes it.

Recognition closely links to production and control, but for the moment let us concentrate on it alone. People can be instructed to recognize many things, to know the definitions of many words and concepts. But they can also generate the recognition through study. Powers of recognition acquired through instruction alone are powers liable to the limitations of rote learning, knowing definitions and when they apply without genuine recognition of their meaning. Learning without study will often culminate in a lamed mastery of material. There is an inwardness to recognition that makes it hard to discuss. What happens

when the student suddenly sees a face or understands a word? Perhaps she suddenly recognizes it as a permanence, a stability, that has a place in her capacity for intentional life.

Let us leave this intriguing question. Here are some things that might be done to create an environment of study conducive to the recognition of objects and concepts. Design is, happily, an empirical endeavor that starts with practical postulates based on partial understanding and then leads through trial and reflection to strengthened understanding and to improved postulates. First off, make sure that the student's work environment has many potential objects of recognition in it. Present these clearly; exemplify them well; use them consistently. Be honest that many matters carry with them problems of recognition that need to be surmounted. It may be better to explain the difficulties of recognition that a student faces than to try to engender a premature recognition.

Note how certain books for infants center on the problem of recognition, presenting sample objects for tactile recognition, a piece of satin for smooth, sandpaper for rough, and so on. Infants begin acquiring their culture through study; adults do not instruct but situate all sorts of chosen objects in the infant's universe. “What’s this?” queries not so much a name; rather a sign that the child recognizes the *thisness* within the intentional horizon they are coming to share. This same practice carries over into the nursery school and the first few grades where the good teacher fills the environment with invitations to discovery, to awareness, to the posing of that wonderful question, "What's that?" Again, the pronoun points less to an inert object than to a vector of potential intentionality. This practice recedes in the later grades largely because the objects that require recognition become increasingly numerous and increasingly abstract.

Experience precedes consciousness. Having students experience endless distillations of complex cultural works will not evoke cultural literacy. Students need an ever-widening range of cultural experience, direct contact with the works, undistilled, unexplained, mystifying and mystical. To this experience, they will respond in many ways—perhaps bored, to another boorish, to some confused, to others wondering and enthusiastic, enchanted, star-struck, angry, sad, embarrassed, determined, and who-knows-how. What is important for the student's efforts to build her powers of recognition is less the immediate response,

but her filling her coffers of experience, for the moment when something significant comes into her field of awareness and she can grasp it—"Ah ha! I recognize what this means, how I can use it, where it fits. I see now." Recognition then blossoms with the other dimensions of the cultural universe—potentialities of action, control, choice, and commitment.

Educational technology has great promise as a means to broaden access to the numerous, intense, diverse cultural experiences that people can use to recognize the rich thisness of their world and their possibilities. Here I speak of educational technology in the broad sense, as the system of systems that people are developing through the contemporary times. We face innumerable issues in extending this system of systems in such a way that it maximizes everyone's horizon of recognition into a cornucopia for active thinking. Suffice it here to lay down as the first of our formal design principles for supporting study with educational technology in formal educational settings.

> Design the system so it offers students a continual flow of substantive cultural experiences. The school, its classrooms, and especially its educational technologies should be a spectacular picture window on the world. Do not structure access to all these sources as a formal part of the program of instruction. Keep it free of objectives, free of assessment. Provide it as an opportunity for study, a resource for recognition.

Make no mistake; this design principle will not be easy to implement. But let us not trouble ourselves over the difficulties here—they are the sort of difficulties it would be nice to have. Let us turn instead to the next principle of design for study.

Causal Alignment

Think of an everyday mechanism, a pair of scissors, a bicycle, an eggbeater, what-have-you. The proper alignment of its parts largely determines how well it performs. If the fastener holding the blades together is loose, the blades will not align closely and flat to each other and the scissors will make a short and crooked cut. With causal production systems, good alignment is essential. This holds true for the intentional pursuit of possibilities in study: the means to cultural

production should align well to facilitate the cultural action a person intends.

Production lends itself to instruction. Pull this; push that; rub it smooth; put the gear wheel on the axle; tighten the screw; label it; heat the wire then apply the solder. Hence a lot of schooling involves instruction in how to do things. The pupil learns how to read and write, how to do basic mathematics, how to think critically, how to keep informed about public affairs. As alignment is important in the everyday mechanism, so it is equally important in the instruction about causal processes. It is not too hard to teach production skills, but if the skills taught do not align well with the skills used, the effort is largely a waste.

Alignment of skills determines largely whether instruction for production will be useful. For production to become a domain of study, one in which the inquirer's intentions control the process, the means of production need even more to align effectively. Mastery of production culminates in a "Look! Ma!" experience, which differs significantly from the "Ah, ha!" experience of recognition, or the "I got it!" experience characteristic of control. We validate both recognition and control inwardly, through what Polyani called "personal knowledge." Mastery of causal processes culminates in a demonstration to the external world, a victory on the field, a first, a best, one for the record books. "Look, Ma!" is an appeal to the significant other for approval. Insofar as skills imparted through instruction do not align well, level to level, students will have great difficulty taking over and pursuing them according to their own intentions, for they will not find much by way of an arena of external validation.

Take a simple case, fairly late in education, where generally we would judge that the system works reasonably well. Students in the later years of college and in graduate school incessantly engage in production, writing papers for course after course. Usually, however, all this production thoroughly misaligns with the production processes of advanced scholarship. Functions, conventions, and standards derive from the grading system, not the system for advancing knowledge and understanding. Students write cautiously, for their instructors, who receive the mass of work as a gigantic chore, plowing through it knowing they will learn little from it. If writing were well aligned to the full academic production process, at this level publication would be the indicator of excellence. Students would write less and revise more; they would

venture an ascending spiral of projects that carry their efforts to the threshold of creative production— "Look, world! Here's what I've made!" The system does not align in this way, however.

Note that the case is different on the gridiron. From high-school through college, football, North American or global, basketball, and baseball too, all align well with their professional versions. Scouting talent can begin early. The better talents win scholarships to the most intensive programs where they get excellent coaching. But the whole system aligns well enough that the pros even manage to recruit excellent prospects from small schools in out-of-the-way places. As production systems, sports align better across the levels of formal education than do academic disciplines. As a result, sports have been more Jeffersonian than the mind, a better channel upward for those gifted with unusual talent.

Many educators presume that aligning productive efforts by students with the production processes of the world-at-large miseducates. Sports smack of professionalism. Aligning learning with the work of the world is banausic, as Aristotle stigmatized it, banal, tainted by vocationalism, the trade school. This prejudice should be reexamined. Were a lack of alignment in production skills good educational strategy, professional education would never have developed. To begin making sense of this problem, we should distinguish between the problem of alignment, *per se*, and that of the complexity of skills to be aligned. Aristotle's critique can be saved, while espousing the principle of alignment, by recognizing that in aligning skills one should preserve their range and complexity. Try assembling a mechanism of many parts, each fitting together at close tolerances. Almost always it would be easier to get the thing together by leaving out one or two parts—all the others would then easily snap tight in place. That is not a good way to assemble the mechanism, of course, and the educator who attends to the alignment of skills must avoid such shortcuts.

Let us not, however, leave our example of the complex mechanism quite yet. Given the parts, properly tooled to the specifications of the mechanism's design, we cannot leave any out during assembly. But in every area of activity, a great deal of design effort goes toward simplifying and improving the set of parts required to perform a given function. Design efforts of this type are changing the sets of skills important to production in numerous fields. Information technologies simplify and

integrate complicated and disparate production systems. Educators know too little about these changes.

Suffice it here by way of summary to advance the following propositions.

> In general, design the instructional system so the skills it imparts align well with the skills that have real use in spheres of activity in which students will engage throughout their lives. If the alignment between skills imparted through instruction and those of use in everyday activity is accurate, then students will be more able to develop such skills through intentional study, in addition to learning in response to instructional objectives. If the instructional system misaligns the skills it teaches and does not give students palpable evidence of worthwhile achievement, many will drop out and seek on their own to develop skills that they can validate in their immediate surroundings. If it aligns the skills well and introduces students early to tools of real use in powerful production systems, students will study those systems, building their growing mastery of them into productive places in social and economic life.

This problem of causal alignment within educational processes relates closely to that of control and we need to examine control to deal with the problem of alignment further.

Locus of Control

Here we can state the basic design principle right at the outset.

> To improve the opportunities for study, design the system so that students are at the locus of control for as many significant decisions about their educations as possible.

A worried buzz arises. Students will drop out; they will take the course of least resistance, or they will do other foolish things that make it necessary for us to exercise sound judgment on their behalf, for their own good, you know. After the buzz subsides, a more sage dissent will resound with weighty words: to put the student at the locus of control will be to misalign the system in the most radical way possible. In virtually all things the student must learn to live and work displaced from the locus of

control. Perhaps. We live and function within complex hierarchies of control. We cannot be at the locus of control with all of them. With those matters, therefore, we must learn to live and work displaced from the locus of control. Having to do that is our condition, not our purpose. We can better understand this condition by referring back to Kant.

As Kant suggested in discussing the analogies of experience, we can think about a phenomenon, either according to the principle of production or according to that of community. Production lets us examine something according to the principle of succession in time by using the law of causality. "All alterations occur in accordance with the law of the connection of cause and effect."[6] Interpretation of phenomena according to cause and effect will start at an arbitrary beginning. One cannot work back endlessly through the succession in time to some first cause. Instead, one must be content to start the causal sequence somewhere. Community lets us examine phenomena according to the principle of coexistence by using the law of reciprocity. "All substances, insofar as they can be perceived in space as simultaneous, are in thoroughgoing interaction."[7] When we stand in coexistence with things and in thorough interaction with them, to exercise our will we must try to control the system of which we are a part. As one cannot, with production, go back to a first cause, one cannot, with community, encompass everything in a complete system. These are elements outside the system of control and if they threaten to destabilize it, people will try hard to find ways to bring them within the system.

Students of information have made great advances in understanding the dynamics of control within a given system. The locus of control at any time IS the vantage from which a person can use information about the past and current conditions of the system, along with hopes and expectations about its future states, to alter its operations. We should properly speak, I think, of loci of control, for in most systems numerous people find that they have such a vantage from which they can exert partial control within the system. Only the villainous megalomaniacs of Bond films, or perhaps Donald Trump,[i] believe they are fully at the locus of control. Within humane realities, “locus of control” should refer thus a partial, constrained condition, a subjective state, but a most important one nevertheless in which a person actively copes with contingencies as she forms and pursues her purposes. A scandal of educational theory is the

paucity of work that has made good use of the concept of control. As a result, within the confines of this paper, we cannot clarify important aspects of the matter. Yet we can make clear a fundamental point about control by addressing several matters briefly.

One of these matters is the tendency that educators have to pay more attention to issues of organizational control than to those of educational control. Complex organizations display numerous structures of control. Precisely what we mean by "being at the locus of control" differs significantly for a passenger in an airline jet, a voter in a presidential election, a shopper at the suburban mall versus one on Amazon, an assembly worker on the line, a CEO receiving a take-over bid, and so on. Educational organizations have their control structures, totems that students tend to be at the bottom of.

[[[technology empowering students' control of their education. Introducing some concepts helpful in analyzing the pedagogical problems and possibilities of control.

Alienation—displacement of an agent from his appropriate locus of control

Stake—interest in the outcome of control

Power—degree to which an agent can determine the over-all outcome of control from his locus

Responsibility—degree to which control can be destabilized from one's locus

Increment—particular portions of a complex control process managed from one's locus

Blinkers—a deficiency of information needed for control to be exercised.

Whereas production lends itself to instruction, control does not. We have defined instruction in such a way that causal sequences will most often be adduced as instances of it.

Thresholds of Commitment

[[[Design the system so that appropriate thresholds of commitment confront students, neither non-existent nor overwhelming. Technology as a means to modulate the threshold.]]]

Selective Identification

[[[Design the system so that students will find they have the opportunity to identify themselves by making characteristic patterns of selection. New technologies as arenas for self-definition. Identity as a chosen expression, not a given state of being.]]]

Conclusion

[[[At the outset, I suggested that epistemic definitions have their value because they enable us to know phenomena better than we could without them. To test the value of the definitions of study developed here, we should look for ways in which they may help us understand outstanding questions. I think they help explain two puzzling yet significant educational phenomena. These are the persistence of class differences in educational achievement, and differences between siblings in educational achievement.]]]

[[[Younger siblings generally do not achieve as well educationally as the first-born in their family. Why is this? I hypothesize that the older sibling unwittingly disrupts conditions for study in the surroundings of her younger sibling. Thus, even though instructional opportunities would remain constant between the older and younger sibling, the conditions for study would favor the first-born. Examples.]]]

[[[Even where instructional opportunities have been relatively well equalized, class differences tend to reproduce with the middle and upper class children out performing working class children. My hypothesis is that the middle-class environment spontaneously provides conditions for study—there is a richer selection of cultural materials for recognition, better alignment of production systems, a higher chance that the child will be at the locus of control for significant aspects of life, more manageable thresholds of commitment, and more opportunity to select a positive self-identity. Although the objective correlates of middle-class life provide better conditions of study, the disadvantages of the underclass can be overcome because the conditions of study are partly in the eyes of the beholder. Dreams and anger—Martin Luther King and Malcolm X.]]]

1In my use of Kant in this essay, I intend to be neither nostalgic nor anachronistic. For our purposes here, Kant should be taken as a living presence. Kant is to pedagogical design as Newton is to aeronautical design. Although physics has progressed far beyond Newton's version of it, his version is still the one appropriate for describing the flight of airplanes. In a similar way, although epistemology has progressed far beyond Kant's version of it, his critiques still give us tools appropriate for describing educational relationships.

2Goethe, *Wilhelm Meister's Apprenticeship,* Thomas Carlyle, trans., Indenture, end of Book VII.

3For a useful discussion, see Robert J. Ackermann. *Data, Instruments, and Theory: A Dialectical Approach to Understanding Science*. (Princeton: Princeton University Press, 1984).

4G. W. F. Hegel. *Philosophy of Right*. (T. M. Knox, trans., Oxford: Clarendon Press, 1952). p. 10. "Actual" translates *wirklich*, which relates etymologically to "working." One might almost translate Hegel as saying that the rational is effective and the effective is rational.

5Kant set the problem of synthetic *a priori* judgments in the introduction to the *Critique of Pure Reason*. I take all three critiques as inquiries into the constructive power of thought giving rise through design and education to the world of human culture.

6Kant, *Critique of Pure Reason*, Statement {2nd ed.) of the Second Analogy: Principle of temporal sequence according to the law of causality (Paul Guyer & Allen W. Wood, trans., New York: Cambridge University Press, 1998), p. 304.

7*Ibid*., Third Analogy: Principle of simultaneity, according to the law of interaction, or community. p. 316.

1.

2. A useful digression: The appeal of someone who thinks he completely controls everything to those who believe they have no meaningful control to what happens to them.

3.

Immanuel Kant's 1784 response to the question "What Is Enlightenment?" can help us consider this question. Kant appreciated the importance of striving for principles applicable in all possible contexts: hence the high degree of abstraction characterizing his three critiques. His reflection on enlightenment, however, concerned how general principles could transform historical life.

I think this conference, with its openness to work in progress and its de-emphasis on “relevance” to the immediacies of practice, steps towards loosening academic work from academic constraints. I’d like to take that one step further by creating a set of online worksites through which we can engage in the public use of reason about education unbounded by the needs and constraints of private spheres. For those who contribute to them, Wikipedia’s sites are worksites in the public sphere where people self-organize visible effort, ever in progress, to create encyclopedic resources freely open to all. Let us create a parallel effort for advancing the public use of reason about education with two significant departures from the encyclopedic practices pioneered by Wikipedia. Instead of eschewing original research, the new worksites will promote it and therefore as a rule authors will sign their contributions, taking onymous, not anonymous, responsibility for them.

For this purpose, we should pay only tangential attention to Kant's lecture notes, *Uber Pädagogik*, and his discussion of *Der Streit der Facultäten*. Instead, we start by recognizing that Kant’s three critiques cover a lot with respect to *mentefacture*, although by no means everything. In what follows, I use them, not as texts demanding explication, but as a kind of heuristic for a text, one more affected by the spirit of Kant that the letter of his works, in an effort to talk about education in a way illuminating in all possible contexts.

Nobody can contribute to the good of all mankind who does not make of himself what can and should become of him. Everyone must, therefore, cultivate and nurse the garden of humanity where he's rooted, as the tree turns green or the flower blooms. We all carry an ideal in and with us, what we should be and are not. We know all, the dross that we should discard, the form we should attain. And then, with what we should become, with what we can do only through ourselves, and with what others can become through what they can do through themselves, achieving it in action, our humanity necessarily becomes one with the humanity of others and our full lives a school, a field of exercise for it. An Apostle himself says, "What is true, honorable, just, chaste, lovely, what is proclaimed, for instance, a virtue, an accolade, to these apply yourselves!"

Johann Gottfried Herder: Briefe zur Beförderung der Humanität. 3.32[20]

[20] Johann Gottfried Herder. *Briefe zur Beförderung der Humanität*. 2 Bände, Band 1, Berlin und Weimar 1971, .