Tempering Relativism in the Epistemological Forges of the Second Millennium: Temporary Hardness States for Pedagogic Realism

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During the last quarter of the twentieth century extreme forms of relativism have permeated academic discourse. This allowed many of us to romp and play in mind frames which had the qualities of virtual places that seemed to defy the evidence of our perceptions. Less extreme forms of relativism influenced the pragmatic realism of social upheaval and change in American society and elsewhere. "Scientific" justifications of inequality in the first half of the twentieth century fell away to new conceptualizations of humanness. American society is still wrestling with these new dualistic and polyistic forms of social relativism: woman = man; heritage-*x*-person = heritage-*y*-person = heritage-*z*-person.

As we begin the second millennium, in light of all the thought and research that has resulted in relativistic paradigm shifts, it would seem somewhat regressive to engage in a recovery project of "objectively based" truth as it existed in the early and mid twentieth century. Nonetheless, Dennis Lomas points us to one of the most difficult and challenging philosophical arenas facing the second millennium. Living epistemologies are now on the aging edge of generations born into objectively based epistemologies which evolved to more relativistic ones.

In a Piagetian sense, what would a child's epistemological development look like founded in preschool years upon "extreme relativism," loosely defined by Lomas within the subject teaching domains of mathematics and science as a pedagogy which "denies the objective nature of *all* propositions from mathematics and science?" As a hypothetical, this is something of an absurdist task, especially when constrained to using the medium of text to express its nature. Extreme relativism taken from the realm of play to the realm of the pragmatics would probably leave us outside the distinctions of subject domains, for example, science, mathematics, history, language, and even outside the distinctions of language domains, for example, Chinese, Spanish, English, Arabic, Swahili, and Ojibway.

Umberto Eco, Italian philosopher of semiotics and aesthetics and best selling novelist, invented a character named Salvatore who provides a hypothetically illustrative epistemological state of extreme relativism:

> Salvatore spoke all languages, and no language. Or, rather, he had invented for himself a language which used the sinews of the languages to which he had been exposed....And yet, one way or another, I did understand what Salvatore meant, and so did the others.....I realized that he was not so much inventing his own sentences as using the disiecta membra of other sentences, heard some time in the past, according to the present situation and the things he wanted to say, as if he could speak of a food, for instance, only with the words of the people among whom he had eaten that food, and express his joy only with sentences that he had heard uttered by joyful people the day when he had similarly experienced joy.[1]

In the same period of the 1980s, absurdist playwright and novelist Samuel Beckett, experimenting with French postmodern linguistic theories, explored the embodiment of extreme relativistic speech:

> What when words gone? None for what then. But say by way of somehow on somehow with sight to do. With less of sight. Still dim and yet —. No. Nohow so on. Say better worse words gone when nohow on. Still dim and nohow on. All seen and nohow on. What words for what then? None for what then. No words for what when words gone. For what when nohow on. Somehow nohow on.[2]

It is certainly interesting to explore the philosophical fields of "extreme relativism" in a place of "somehow nohow on." Many of us have found it profitable to test propositions within relativistic frontier borderlands existing beyond perceived limits of truth. However, when placed in the 2001 pragmatic context of a developmentally systematized conceptualization called "school." Kindergarten in such Beckettian or Ecoian embodiments faces the "extreme relativism" dilemma of unreconstructable, nihilistic deconstruction.

Eco's characterization of a "Salvatore epistemology" seems to embody an extreme relativism based epistemological praxis (as opposed to an objectively based one) for multicultural pedagogy. Its pragmatic existence as an educational system may be possible in digitally mediated virtual cybernetic spaces of the near future. Digirati scholar-developers, such as Ray Kurzweil, predict such "Salvatoresque" digitally mediated ontological and epistemological "realities" are not beyond possibility by 2099 where:

> Even among those human intelligences still using carbon-based neurons, there is ubiquitous use of neural-implant technology, which provides enormous augmentation of human perceptual cognitive abilities. Humans who do not utilize such implants are unable to meaningfully participate in dialogues with those who do....The goal of education, and of intelligent beings, is discovering new knowledge to learn.[3]

"Perception" in predicted near virtual futures of cyborg "reality" may give us forms of "extreme relativism" which have yet to be consensually experienced without a 2001 sense of nihilistic breakdown. Meanwhile, as the twentieth century drew to a close in America, the National Council of Teachers of Mathematics, a leading influence on the nation's "learning standards" movement, brought relativism into mainstream pedagogic practice with notions such as:

> cognitive work for all students is culturally dependent because students bring to each lesson their past experiences and the diverse facets of their cultural identities. Thus, instruction that capitalizes, and builds, on what students bring to a problem situation can motivate them to struggle with, and make sense of, the problem and share their thinking with classmates.[4]

Unfortunately, in 2001, teachers operating from within their own recently evolved relativistic epistemological frameworks are attempting to forge such pedagogic practices in mathematics and science which sequence epistemological scaffolding in ways foreign to the epistemological development of their own minds.

So where does that leave us? Lomas himself alludes to a Feynman lecture on wave/particle duality. Many "old heads" of today did not experience such justifications in their science curriculum of youth; their epistemological frameworks had to adapt. If we take "duality" as an epistemological metaphor, the effects of a *constant* state of dualist epistemological development on early childhood remain uncharted.

Can the human mind comfortably develop in such a state of "confusion" during preschool years? Some work has been done on early childhood states of multilingual, parallel language development, as evoked in psycholinguist Kenji Hakuta's

characterization of a "mental typography" of "the bilingual mind,"[5] as well as digitally mediated parallel epistemological states, as evoked in parallel computing researcher James Baily's characterization of "the aftermath," an epistemological state of the mathematics domain "authored by a partnership of sequential human minds and autonomous parallel electronic circuits" presaged by Mitchel Resnick's pedagogic model which would "start teaching the new parallel ways *before* we teach the old sequential ways instead of the other way around."[6]

Lomas posits "a much needed critical epistemological realism." We most certainly need a grounding to negotiate the rapidly approaching future of "virtual reality devices" to which Lomas briefly alludes. What "students really do correctly see with their own eyes" is becoming a construct more in the vein of what "students really [will] correctly see" in a *digitally mediated* perceptual framework.

How do we forge a new epistemological "alloy" which allows Lomas's pedagogic notion of "a simple pragmatism — if it works, it is true" to "adequately capture the experience of many students" at any particular pedagogic moment's engagement of "objectively based" experience in the mathematics and science domains, while simultaneously allowing such pedagogic moments to stretch across time and perception to accommodate "objectively based" experiences with different forms of justification, that is, relativism?

In search of pragmatic bridges to the future, elastic "memory" nickel-titanium (NiTi) metallic alloys refined in the last quarter of the twentieth century (allowing a metallic object to be forged as two simultaneously existing metallic shapes) give us the pedagogic analogue for a possible dualistic state of "critical epistemological realism."[7] The science of materials research refers to the process of forging NiTi artifacts as "two-way shape memory training." Forging reproducible pedagogic practices which retain a sense of "temporarily hardened" realism for security in the learning processes of the "hardened disciplines," while retaining an "overall tempering" of elastic relativism, may serve to give us pedagogic "springy" forms of Lomas's "objective correctness" as a pragmatic alloy of "objective truth" and "extreme relativism."

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1. Umberto Eco, *The Name of the Rose*, trans. William Weaver (New York: Warner Books, 1984), 47-48.

2. Samuel Beckett, *Worstward Ho* (New York: Grove Press, 1983), 29.

3. Ray Kurzweil, *The Age of Spiritual Machines: When Computers Exceed Human Intelligence* (New York: Penguin Books, 1999), 280.

4. National Council of Teachers of Mathematics, Assessment Standards Working Groups, *Assessment Standards for School Mathematics* (Reston, Va.: National Council of Teachers of Mathematics, May 1995), 2.

5. Kenji Hakuta, *Mirror of Language: The Debate on Bilingualism* (New York: Basic Books, Inc., 1986), 73.

6. James Baily, *After Thought: The Computer Challenge to Human Intelligence* (New York: Basic Books, 1996), 218-21.

7. Commonly referred to as nitinol (NIckel-TItanium Naval Ordnance Laboratory) alloys after the 1960s work at the U.S. Naval Ordnance Laboratory.