

# “Meaning” and “Understanding”: The ‘Dark Matter’ of the Pedagogic Universe

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Let us imagine that such meaning-blindness [as “semantic aphasia”], now happily exceptional, were to reach epidemic proportions. It is clear that everything we call civilization would grind to a standstill. All printed matter would become worthless, and as memories of craft and skill began to fade, all human enterprises would collapse. Deprived of all information beyond the narrow circle of immediate experience, men would be unable to think or to make intelligent provision for the future and would rapidly degenerate to a merely animal level. Since the existence and successful use of language make this nightmare of the general destruction of meaning only a science-fiction fantasy, one might expect the wisest of men to celebrate the power and the wonder of this incomparable human endowment.

In truth, however, the testimony of the wise is quite different, amounting on the whole, to a surprising indictment of the imperfections of language. (Black 114.)

**A**n old-time supervisor of student teachers carries in his head anecdotal recollections, which, filtered over time, come to represent the essence of a beloved field of work. Here, it is a recollection of those occasions which, taken in the aggregate, have always represented something in flux, something impenetrable: the pedagogical struggle to create “meaning” and “understanding” through language, and the attempt to find the appropriate logic for characterizing the process. But most of all, concerning ‘meanings’ for which children need symbols, there is the haunting sense that the abundant ‘energy’ and innate capacity which children have for symbolization is forever lost in the experiential and cultural ‘dark matter’ which surrounds the pedagogic world, a darkness which seems less penetrable in the contemporary classroom. The world of contemporary pedagogy can be faulted for being deficient in both senses of Max Black’s statement: on the one hand, in an important sense of the term, there is a “general destruction of meaning” in the contemporary school; on the other hand, there is very little attention paid to “the imperfections of language.” What prevails is a narrow, mechanical approach to the development of intelligence through language, whatever the field of study might be.

Applying ‘Ockham’s razor’ to conceptual process and a ‘machine model’ to learning process, teachers typically lead students to meaning and understanding through the narrowest lens possible, as if “understanding” involves cognitive convergence at a point; as if the growth and nurturing of literacy requires the support of a reductive logic, a logic involved with a fragmentation of fixed references; as if a “vocabulary lesson” consisting of static dictionary definitions can be a heuristic model for providing content to the Understanding (in Kant’s sense of the term). The logic, in which much contemporary pedagogy is mired, accounts precisely for the sense that sensitive students have that their schoolwork is out of touch with their world—that their world of “meaning” is simply an impenetrable ‘dark matter’ which mysteriously surrounds the conceptual reifications which comprise the official curriculum. Pedagogic training fails to convey to teachers that the most productive pathway to this surrounding dimension of “meaning” is not through methods built on quantitative, “causalist sciences,” but through an expanding *anthropology* of human experience. Examined from von Wright’s hermeneutic perspective,

one might find that “meaning,” seen as a function of literacy, is much more a matter belonging to the “*logic of human action*,” to the same logic which governs human morality, than to any form of “causalist science.” In essence, a hermeneutic study of “meaning” and “understanding” stresses the ultimate impact which human intentions have on the surrounding world, an awareness strictly missing in the work of the contemporary teacher:

We could say that formal logic, as we know it today, is essentially the logic of a *static* world. Its basic objects are possible states of affairs and their analysis by means of such categories as thing, property, and relation. There is no room for *change* in this world. Propositions are treated as definitely true or false—not as now true, now false. Things are viewed as having or lacking given properties and not as changing from, say, red to not-red.

Acts, however, are essentially connected with changes. A state which is not there may come into being as a result of human interference with the world; or a state which is there may be made to vanish. Action can also continue states of affairs which would otherwise disappear, or suppress states which would otherwise come into being. A necessary requirement of a Logic of Action is therefore a Logic of Change. (von Wright vii)

In all of Frank Smith’s work on “comprehension,” there is the corresponding notion that “meaning” requires a Logic of Action, since “meaning” emerges only to the extent that humans impose it on or through language; that “meaning” is a deep structured aspect of language which cannot be measured or observed directly.

**Anecdote 1:** Hybridized language and symbolization is the imperceptible ‘dark matter’ surrounding the monophonic and fragmented universe of contemporary pedagogy—or, “Is Geometry a ‘Language Art’?”

...human language has from the first been subject to change and decay.

Hence we cannot content ourselves with its present state. We must trace our terms back to their origins if we are to detect the bond uniting them with their objects. From derivative words we must go back to primary words; we must discover the etymon, the true and original form, of every term. According to this principle etymology became not only the center of linguistics but also one of the keystones of the philosophy of language. And the first etymologies used by Greek grammarians and philosophers suffered from no theoretical or historical scruples. (Cassirer 113)

**Scene:** The student teaching supervisor visits a 9<sup>th</sup> grade class in Geometry in a New York City school. An assigned student teacher is prepared to review the test given the week before. The master teacher approaches the supervisor and tells him that all of the students in this class failed the test, adding that “This is the worst class I have this year.” The test consists of ten geometric terms which need definitions and several plane geometry problems to solve. As is his habit, the supervisor seats himself next to a student in the back of the room. Since this is an ethnically mixed part of the city, the supervisor is not surprised to find that on the answer sheet of the student on his left there is the name: “Constantinos”. Who is he? What is his background? And does it matter? What seems to matter in this class is his test grade, which was 40%—a failing grade: All ten definition completions were either wrong or left blank, and only two out of three geometry problems were solved correctly, one for half credit.

**Action:** Supervisor (S): “Constantinos, is there anything in Geometry that you enjoy?”

Constantinos (C): “I like figuring out the problems, but all these long words are hard to remember.”

S: “Is your name Greek in origin? Is your family from Greece?”

C: “My family came from Greece two years ago. I went to school there.”

S: “So you can read and speak Greek?”

- C: "We speak Greek at home."
- S: "Now on your test paper—the first word you couldn't identify was perimeter. Does that word mean anything to you?"
- C: "I think it's about measuring squares, but I can't remember what it means. The teacher puts a lot of these words on the board and tells us what they mean, but he goes so fast and there are a lot of them—so I can't keep up. I can't write fast in English."
- S: Taking the student's test paper, the supervisor writes the term *peripatos* just above the term *perimeter*—however he writes it in its original Greek form. "Can you tell me what that term means in English?"
- C: Leaning forward and looking a little astonished... It's "walking around." With real assurance: "It means to walk around."
- S: Pointing to the Greek prefix "peri." and the word "perimeter"... "Do you see the Greek peri. in the word perimeter?"
- C: With a sound of cautious disbelief: "Do you mean that's the same word?"
- S: "Constantinos, did you think Euclid was born in Brooklyn? Didn't you know that the language of Geometry comes largely from the Greek language—your language?"
- C: "The teacher never told us that. I don't think the teacher's Greek, so how would he know?"
- S: "But Constantinos, now you know, and could that make a difference to you and maybe to this class? Now let's look at the other part of this word," and writing, in Greek, the word *metron*, the supervisor asks for its meaning:
- C: "That means measure. Then perimeter means 'to measure around'?"
- S: "Yes. And—now these other terms...?"

Sequel: Through simple transliteration, Constantinos is now able to complete almost all of the remaining definitions. His native language has helped him pass this test with a grade of 80%. The supervisor, with test paper in hand, confers with the master teacher: "Had your student, Constantinos, known that the language of Geometry is rooted in Greek and Latin, a language which he can read and speak, he could have passed this test with relative ease." Without any sense of embarrassment, the master teacher reveals that he was unaware of the fact that this language derives from Greek—"My field is math, not language!" This admission precluded the necessity of raising a related pedagogical issue, viz. whether the presence of this boy in a Geometry class might have provided a unique asset to his work as a teacher—and to those other students who failed this test; and, *a fortiori*, whether a Geometry teacher is first and foremost a teacher of language in the sense that "meaning" rather than mere "skill" is his overriding responsibility. Two things suggest themselves: First, from the standpoint of Peirce's pragmatism, "skill" rests on the question of truth and falsity; the determination of "meaning" however "is a preliminary step." "The truth or falsity of a belief is a matter of evaluation *after* we have determined what the belief means." Second, "making our ideas clear," for Peirce, is not an "introspective" process, but a process which is "*publicly* conducted.." (Munitz 50) From a pragmatic standpoint, at least, Constantino's command of the Greek language could have been an invaluable part of this teacher's work.

Could this student's tacit knowledge of important aspects of the master teacher's field of specialization have been a bridge to "meaningful" knowledge—a means for overcoming intellectual fragmentation? Could the 'dark matter' in this classroom, a hidden multicultural-multilingual dimension, radically alter the narrowly conceived pedagogy of this teacher? Could this student's background experience have provided this class with the instrument needed for *comprehension*, viz. a device for making conceptual *predictions*? Could this student from Greece, who was a repository of the etymons of mathematics, have helped his teacher to further enhance his mastery of his field of specialization, and simultaneously helped him understand the limitations which specialization places on pedagogy and pedagogic methodology? And had this teacher examined the etymonic basis of "perimeter" and "circumference," might he have made clear why both could apply to all closed figures, though circumference tends to be the preferred term for circles? A deep-structured alternative to intellectual fragmentation becomes possible when a field of study is grounded in an anthropological context which, in this instance, recognizes the hybrid nature of language—when the multi-dimensional and multicultural 'dark matter' which surrounds the classroom is illuminated. Here again, Frank Smith's view on the "meaning of meaning" is relevant—viz. that comprehension involves the *superimposition* of meaning on texts and situations.

From the standpoint of the "logic of a *static* world," from the epistemic standpoint of a world as "given," the teacher is in the impossible position of having to know everything. From the standpoint of the "logic of action or change," teacher education would introduce the process of anthropological exploration of the context in which teachers and students and their surrounding world reveal new or possible semiotic possibilities for teaching and learning; it is this expanded world which will allow him to make "meaning" the focal point of his pedagogy. The tacit knowledge of the student, which could be probed through dialogue, would provide teachers with a field of meaning not otherwise obtainable. Thus governed by the "logic of change," a less-static view of field-related professionalism is possible: Governed by the simple demand which time makes on pedagogy, this multidimensionality through dialogue is the only alternative to the congested content-coverage and repetitive learning which are now given priority over the exploration of conceptual "meanings."

**Commentary:** Proposed here is the notion that some of the 'dark matter' of the classroom can be revealed through an already available discipline, viz. a study of the *semiotic* aspects of consciousness, a study which could move contemporary pedagogy in the direction of a substantive incorporation of "meaning"; a study which, unfortunately, is still an untapped resource for teacher education. Michael Polanyi's discussions of "tacit knowledge," in the context of his work on semiotics, would make a significant contribution to the work of the teacher. In addition to Polanyi, the work of Merleau-Ponty, Eco, Derrida, and Goodman would be productive. In his ground-breaking work, *Personal Knowledge*, Polanyi's interest in the "tacit logic of consciousness" grounds the term "meaning" in a logic quite different from the logic which governs much of contemporary pedagogy. How might our master teacher's perception of his field have been different had he understood Polanyi's interpretation of "meaning": "When something is seen as subsidiary to a whole, this implies that it participates in sustaining the whole, and we may now regard this function as its *meaning*, within the whole." (Cited in Innis 34) Instead of immersing himself exclusively in school-assigned textbooks, a broader research into the nature of mathematical signification would have expanded his own understanding of his field of specialization by expanding the etymonic basis of his work. When Latin and Greek were dropped from the required curriculum, the cognitive-cultural bridge which classical language provided was lost, and the Babel of fragmented subject-centered meanings remained. The resulting loss of symbolic continuity could not be remedied merely through devolution of significant meanings to a curriculum of core or general studies. What was lost, anthropologically, could not be retrieved once the language edifice disappeared. What was lost were the philosophic realizations which Heidegger tried to recover. But more important from a pedagogic standpoint was Nelson Goodman's reminder that the semiotic density, which had governed language development, needed resurrection:

The trenchant and laden symbol does not become worthless when it becomes familiar, but is incorporated in the base for further exploration. And where there is *density in the symbol system*, familiarity is never complete and final; another look may disclose significant new subtleties. Moreover, what we read from and learn through a symbol varies with what we bring to it. Not only do we discover the world through our symbols but we understand and reappraise our symbols progressively in the light of growing experience. (Cited in Innis 43.)

Italics added.)

The question that keeps insisting itself, as one looks at curriculum with “meaning” in mind, is whether the language base (Cassirer’s “etymon” as the basis of a cultural anthropology) should be the formal carrier which provides structural bridging to the subjects of knowledge; a basis which manifests itself not merely as an underpinning, but as a bridge which is superjacent to the symbolic fragments which begin to emerge as general concepts.

**Anecdote 2:** The blessed, yet painful, dialectical confrontation of the “tacit” meanings of childhood and the ‘dark matter’ of new symbolic forms.

We can still when learning a foreign language subject ourselves to an experience similar to that of the child....If we do not learn to think in the new language all our efforts remain fruitless. In most cases we find it extremely difficult to fulfill this requirement....In a later and more advanced stage state of our conscious life we can never repeat the process which led to our first entrance into the world of human speech. In the freshness, in the agility and elasticity of early childhood this process has quite a different meaning. *Paradoxically enough the real difficulty consists much less in the learning of the new language than in the forgetting of a former one.* We are no longer in the mental condition of the child who for the first time approaches a conception of the objective world....When penetrating into the “spirit” of a foreign tongue we invariably have the impression of approaching a new world, a world which has an intellectual structure of its own. (Cassirer 133. Italics added.)

**Scene:** The supervisor visits a 4<sup>th</sup> grade class in a multicultural section of Brooklyn in New York City; now, however, the teacher being observed is the regular teacher who has a Masters Degree in Education. This teacher has already taught for a number of years. Her lesson this morning is on “following directions,” and the device is the popular game, “Simple Simon says.” The teacher rehearses the game by introducing the popular instructions: “When I say ‘Simple Simon says do this,’ then you should do it” (as she puts her hands on her head). And gesturing right along, she says “But if I say ‘Do this!’ but I don’t first say ‘Simple Simon says,’ then don’t do it! But if you do, then you’re out and you go back to your seat.” She then gestures for all the students to come to the front of the room, and begins:

**Action:** Teacher (T): “Simple Simon says.....Do this!” All do.  
 “Simple Simon says.....Do this!” All do. “Good!”  
 “...Do this!” Only one child does. The others don’t.  
 Pointing to this child’s seat at the back of the far right end of the room, the teacher moves him in that direction and states: “You’re hopeless—go back to your seat.” The child complies. But as he quickly returns to his seat, the supervisor notices an incipient smile on his face. Of course in the “game-theoretic situation” which is the American classroom, smiling at losing the game makes the supervisor suspicious—who now quietly moves to where the child is sitting. Short pants, white shirt, dark hair neatly combed back, a small leather briefcase with straps and buckles, and with hands folded on his small desk: all of these are marks of some alien child.

Supervisor (S): Whispers to the child: “What’s your name?” Silence.  
 “Can you tell me your name?” The child looks up, a little bewildered. The child does not look like the local Hispanic children, nor does he look like a Syrian child. He is possibly Greek, possibly Italian. And that pretty much covers this neighborhood. Probably Italian—probably

- southern Italian.  
 “Come si chiama Lei?” the Supervisor tries, using a polite form.  
 A bit startled, the child responds: “Francesco.”
- S: “Di dove venite? E mai stato in Italia Lei?”  
 Francesco (F): “Sono Italiano! Ma adesso sono Americano!!!”  
 S: “Da quando?”  
 F: “Una settimana.”  
 S: “Capisce Lei la questa maestra?”  
 F: “No. Niente!”  
 S: To himself: “This child is Italian; he’s been in the United States for just one week; he does not understand anything his teacher is saying! But within a week, this heir of the conquering Caesar, the conqueror of multilingual Europe, has conquered his first school in the New World. “Why were you smiling when you went back to your seat,” the supervisor asks? Francesco’s response contains the blessed charm of a “tacit consciousness” which, imposed on local ignorance, inflames courage.  
 F: “Giusto il primo!”  
 S: Thinking: “He smiled because he was Number One! He was the winner in this new contest! The only word that fits his gestures is *vincitore*, that Classical Latin sense of conquering; and, Francesco added, “when I do understand her—I will always be Number One!!”  
 S: “Piace la questa scuola...e la questa maestra?” (Do you like this school and this teacher?)  
 F: “Si. Mi piace molto, molto!” (Yes. I like it very much!)

**Commentary:** In Francesco’s “tacit consciousness” of the “game-theoretic” character of schooling, the strong meaning of “coming in first” can override even total ignorance of the change which is possible in the form of a game inversion. Unable or unwilling to move Francesco from the “logic of a *static* world,” which is the semiotic base which still serves him, to a “logic of action (or change),” the teacher throws him back into the cauldron of the ‘dark matter’ of non-translatability which leaves him with an illusive “Roman conquest”—a victory in his New World. Rome imposed language, it did not suffer translation. Francesco was not, as his teacher proclaimed, “hopeless.” He was not stupid. He simply imposed meaning on the language he heard and the gestures of the teacher. And, ideally, this ability to “read” meaning into language and gesture was the ability that this teacher needed, ultimately, to nurture. But the irony of this tale is that the teacher herself was stuck in the “logic of a *static* world,” and when two different contents compete in this logic, the result is a clashing confrontation; the result is failure—academic, intellectual, social, and moral failure. But here at least, in Francesco’s case, the tacit meanings which he brought and applied to his new situation saved him from the damnation of pure and simple failure: his learning prospect was good, perhaps even better than the prospect of those native children in his class, because he could at least do the one thing that is required for comprehension: to dip into and apply the “tacit logic of consciousness”—of a consciousness which, here at least, is enriched by the dialectical freshness which “foreignness” allows and sometimes even encourages.

But what was contained in Francesco’s “tacit consciousness?” At least this: that a good Italian student follows the specific directions of the teacher as physically demonstrated; that the teacher never purposely misleads; that a foreign child with no understanding of the new language would be given all the consideration necessary...and more, much more, possibly. This system of expectations, tacit because inarticulate and possibly also unformalizable, not only fits into Polanyi’s concept of “tacit awareness,” but it also “belongs to the conceptual core of

Chomsky's linguistic theory" (Innis 29).

This rich base which "tacitness" provides Francesco is elaborated in Polanyi's work:

We may instantly recognize a familiar writing or voice, or a person's gait, or a well-cooked omelette, while being unable to tell—except quite vaguely—by what particulars we recognize these things. The same is true of the recognition of pathological symptoms, of the diagnosis of diseases and the identification of specimens. In all these instances we learn to comprehend an entity without ever getting to know, or to know clearly, the particulars that are *unspecifiable because they are unknown*. (Polanyi 44)

The supervisor speaks to the teacher, suggesting that she might learn a few lines in Italian for Francesco's sake; after all, did she not have to study some foreign language during her time in school? But most of the conversation deals with the contents of her own "static world": for example, she needs to be alerted to the fact that in her lesson on verbal "opposites," which followed the Simple Simon game, she should not "teach" these children that the opposite of "softly" is "hardly." "Can't you say 'hardly'?" she asks as she strikes her desk with her fist. The supervisor responds: "hardly!" There is a long trip ahead, if this teacher is to be moved from the "logic of a static world" to the "logic of action." She simply fails to realize that this young Italian boy in her class is handing her a pedagogic gift, a gift of reflexive consciousness.

**Anecdote 3:** The 'dark matter' of epistemic fragmentation in the non-dialogical world of pedagogy: How things learned in the past, governed by the "logic of a static world," drive out new learning: Teaching as the practice of transforming the past into the future.

So long as we know no foreign languages we are in a sense ignorant of our own, for we fail to see its specific structure and its distinctive features. A comparison of different languages shows us that there are no exact synonyms. Corresponding terms from two languages seldom refer to the same objects or actions. They cover different fields which interpenetrate and give us many-colored views and varied perspectives of our experience. (Cassirer 133f.)

**Scene:** Socrates would never have received state certification as a teacher (the least of his worries). The "professional" teacher is in the least enviable position when compared with any other professional, because, more than in any other field, the teacher must leave in a quasi-suspended state most of what he or she has learned. The enemy of a teacher's intellectual growth is the "static world" of learning which remains static in the face of novelty and change. The physician and jurist must also be aware of the changes in their fields, but the teacher of physicians and jurists must be exponentially more aware.

There has been a change of venue for the supervisor of student teachers: he has been invited to do student teaching supervision in the rural world of northern New York State. Is the monolingual character of the American classroom going to be even more noticeable in this environment? Will there be any cultural multi-dimensionality here? The very first school visit provides an ironic magnification of monocultural monophony: The principal of the school, a tiny woman in a small town elementary school, greets the supervisor and immediately brings him to a very large display (For what reason?" the supervisor asks himself)—but there, in the main hall, stands a large *papier-mâché* structure, a student and teacher project, in front of which there is a sign in large bold letters which reads: "Beaver Damn". Hoping that this might be an instance of local humor, something in which the principal is involved, the supervisor smiles and says, "Is this a joke?" But the principal pulls him closer, obviously thinking that the supervisor might be missing the point, and points to the sign and sardonically smiles: "No one here, neither teachers nor students nor parents have corrected this sign!" The supervisor tries some wry humor: "Well, perhaps they were trying to say, 'Beaver be damned!'" She's not amused. She seems to be waiting to see whether anyone who walks into this school building will notice the "damned" dam. Was this her version of a North Country school test? And what happens if nobody passes it?

That afternoon, the supervisor observes a student teacher working with a 4<sup>th</sup> grade class. This student's specialty, his academic "concentration, is English/Language Arts. His lesson consists of an attempt to introduce







