

The New Biorhetoric : Fleckenstein’s “Double Lens” in Light of Cellular Intelligence Language is not the sole, perhaps not even the primary, means by which we create meaning in our worlds.

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Abstract

Currently, forty percent of students in Ontario (CA) are unable to maintain a B grade or higher understanding of grade level curriculum outcomes in one or more core subjects (EQAO). This aggregate is not only province wide but observable in British Columbia and Alberta (Conference Board 2014). Comparatively, approximately forty percent of students identify as kinesthetic learners (Deshmuk 503), yet remain underrepresented at the graduate level. For example, fewer than 5% of medical students identify as kinesthetic learners (Busan 2014). While most pedagogues provide effective instruction for auditory and visual learners, it seems we are ill equipped to facilitate kinesthetic learning. The New Biorhetoric, places the body – not sight and sound - at the centre of Fleckenstein's systems body signs, and maps onto her theory new research from multiple fields. I argue that cellular intelligence can be deterministic, informative, because the body and mind are in constant communication through a bio-feedback loop.

Keywords:

Kinesthetic Learning, Literacy, Biorhetoric

In 2001, Fleckenstein claims that the catalyst for the next leap in human evolution, “lies with what I will call a ‘biorhethoric,’ or a discourse of bodysigns” (761). When Fleckenstein uses the term ‘bodysigns’ she is not referring to the ability to read another person’s body language or facial expressions; she is not referring to what is commonly known as social or emotional intelligence. Instead, when Fleckenstein uses the term *biorhethoric* it is best to think of this as ‘kinesthetic awareness’, that is, the body’s reaction to the spoken word. Essentially, the body becomes a source of perception, interpreting the energy created by the spoken word as registered by one’s bodily reaction on a cellular level. Logically, we must infer that the existence of a biorhethoric necessitates the development of a new literacy. I believe this new literacy is what Fleckenstein refers to as “a discourse of bodysigns.”

Fleckenstein identifies two impediments to the development of this new literacy and, by proxy, our evolution. The first is the single vision or “Newton’s Sleep” (762, 765), which, in the context of her articles on the biorhethoric, it is reasonable to infer an equivalency between “Newton’s Sleep” and what is known as Cartesian Perspectivism. The second obstacle is the tyranny of the “semiotic universe,” which Fleckenstein describes as a dogmatic adherence to the belief that all meaning is socially constructed through language (767). Fleckenstein explains that our understanding of consciousness is incomplete, stating: “Rather than defining reality as either a textual construct or an experimental one, a biorhethoric represents reality through a double lens of bodysigns” (762). Yet, within the article Fleckenstein’s definition of bodysigns oscillates between notions of the “body as visual text,” as in when a child learns to steal following a pattern of behaviour from a sibling (766), the “body as lens and perspective,” evident in the example of Nancy Mairs writing shaped by material body, and felt-sense which posits the “body as reader” (767). Sandra Perl defines felt-sense as, “the non-verbalized perceptions of the words, or to what the words already present evoke in the writer” (Pearl 365). Fleckenstein’s inconsistent use of the

term biorhetoric has led to much confusion, most notably, a false equivalency between Fleckenstein's hypothesis and Perl's "body signs."

Although the meaning of *biorhetoric* is not stable, Fleckenstein's writing forces upon the reader precisely that which she is prescribing: the biorhetorical act of seeing, speaking and being "double." Due to a lack of kinesthetic literacy within the general population, critics seem to have missed the point. From a biorhetorical reading, we recognize that her definitions are purposefully unstable because, in the absence of clear categorical lines separating standard notions of visual imagery, academic writ and the poetics of scientific inquiry, the reader is forced to perceive the meaning of her article in how it is transcribed on their own body.

However, what if all this confusion was not the result of Fleckenstein's attempts to blur vision, but a misconception of what humans are, that is, what human perception truly entails? This misconception is writ large in Fleckenstein's work in several ways. First, the priority given to "double seeing" and "double speaking" disorients the reader from what is, in my view, the focal point of any biorhetoric: the "bio." Second, while Fleckenstein's analysis includes a biological and, to some degree, an anthropological perspective, it focalizes the humanoid experience post the development of vocal cords and the enlargement of the frontal cortex of the brain. In this way, Fleckenstein separates human experience from nature hence perniciously eliminating the possibility that felt-sense may have been a pre-existing advantageous characteristic of homo-sapiens; one informing our evolution and leading to the development of an enlarged frontal cortex (visual perception) and vocal cords (language) thus guiding our evolution long before our proto-human ancestors ever walked the earth. In other words, Fleckenstein places the cart before the horse in assuming that the biorhetoric is a perception humans must cultivate instead of viewing it as humanity's most primordial form of perception.

In the first section of this essay, I propose the “missing link” in what I am calling *The New Biorhetoric*. I examine Paul Stamets’ research done in the field of biology, namely the “biome” and “micro-biomes,” utilizing his ideas to reconceptualise human perception and the role of “felt sense” thus adding another “lens” to Fleckenstein’s biorhetoric. Next, I review key concepts within Fleckenstein’s article that, in light of Stamets’s research, merit further exploration. Drawing connections to the pedagogical tenets of Ecomposition, I argue that this is the rightful home, or “biome,” of the new biorhetoric. In the last section, I consider the advantages and implications for applying biorhetorics in the classroom, examining existing applications of biorhetorically based pedagogies (i.e. Indigenous ways of knowing) and the advantages afforded by a biorhetorically based pedagogy with respect to Paulo Freire’s conception of authentic voice. For those less familiar with Stamets’ hypothesis of cellular intelligence, specifically, his research on mycelial mats and their connections to all sentient life, it is worth noting that the theory of cellular intelligence remained a hypothesis until 2017. As the sole brain child of Stamets, cellular intelligence was not considered viable by most researchers in the field. Presently, views toward his theory are changing as evident by the simple fact that many reputable universities are currently funding research in the areas of mycelial networks, micro biology and how they determine the basis of all life in the biosphere (Stamets 4).

The common ground Fleckenstein and Stamets share is the dismissal of the very narrowly defined Cartesian notion of human consciousness as perception. Where their summations of existence differ, is over the following statement: “Humans are not nature.” While many scholars and researches, like Fleckenstein, have suggested that the great anthropological leap forward resulted in our species being removed from nature, viewing homo-sapiens as completely separate from nature. However, Stamets disagrees with this premise. If it can be said that the material objects - specifically those resting on the earth’s crust, including microbiology, fish, flora and fauna - that

constitute nature and create the biome which allows for human life are not longer part of the daily human experience, then we may have insulated ourselves from the forces of nature but nonetheless still live in nature. Skeptics of this view would do well to consider a group of humans truly removed from nature. Where do you imagine this forlorn control group? Do you imagine them drifting in space, on Mars or dwelling within the Earth's core? Do they exist outside or beyond life-giving properties of nature (i.e. oxygen, food, water)? As long as our existence is dependent on nature, we are nature; should the earth die, we die, for we are not simply on the earth but of it.

Consequently, within Fleckenstein's schema of the biorhetoric, nature is excluded from the definition of semiosis. To her, "Semiosis" refers to "all patterns" or shapes of physical reality, including but not limited to any sign system, art, ritual or language (762). While there is a vague acknowledgement through the umbrella term "all," Fleckenstein's focus is clearly on "all" that shapes our 'current' material reality in our 'current' form. This point is reinforced by her attention to cultural markers such as oral language, the written language of signs and ritual. Unfortunately (758), Fleckenstein's perception of the body is, with respect to the evolution of all life on planet earth, temporally provincial (i.e. viewing existence within the span of proto-human existence). Are we truly the total sum of culture and language? Is our role on this planet merely the production of language and culture? Further, is "action," as determined by language, culture and identity, the only accurate definition of "body" or "being"?

When Fleckenstein states, "materiality and semiosis... are mutually entangled in a nonlinear wave of cause and effect," she may be correct but it is only part of the picture. To see the whole picture we must situate the analysis in a span of time great enough to allow for a reconceptualization of what constitutes sentient life and intelligence: a time when our ancestor's primary means of communication and perception was conducted through "being," not culture, language or visual

perception. According to Stamets, “Animals are more closely related to fungi than any other kingdom... 600 million years ago we shared an ancestry” (2). To illustrate the point of mushroom ancestry, Stamets argues that the same bacteria and mirco-organisms that infect mushrooms also infect humans. In terms of evolution, the branch of fungi that chose to live above ground are the oldest ancestors of animals ergo humans are fungal creatures (3). Moreover, Stamets points to the healing properties of mushrooms and the fact that many anti-biotics, penicillin for example, are created from mushrooms that contain much of the same bacteria as humans (4).

Recently, Stamets work has achieved wider recognition on the world stage. His theory promotes an idea called “cellular intelligence,” and most of the research to support this argument relates to various demonstrations of mycelium networks in action, that is, demonstrable proof of cellular “deterministic” intelligence. Stamets believes this deterministic intelligence is responsible for creating the basis for all life within the biosphere by selecting the microbes and bacterial necessary to support animal, insect and tree life that decompose and become food (Stamets 4). Moreover, he claims: “... mycelial membranes act as a collective consciousness... I believe that mycelium operate at a level of complexity that exceeds the computational powers of most advanced supercomputers” (7). While Stamets admits the notion of cellular intelligence may be hard for many to accept, the evidence is undeniable. In research facilities around the world, mycelial mats have been shown to respond to stimuli, threats in the environment, reorient their growth for the greatest benefit of the organism and even survive catastrophic events (8, 10).

The body of demonstrative proofs supporting the theory of cellular intelligence is gaining in popularity as more researchers set out to disprove it. Laura Sanders observations of the “Slime Mold Experiment” (2010) of Tokyo subway system, are perhaps the most poignant for this essay.

Sanders notes:

When presented with oat flakes arranged in the pattern of Japanese cities around Tokyo, a single-celled slime mold constructs networks of nutrient-channeling tubes strikingly similar to the layout of the Japanese rail system, researchers report January 22 in *Science*. A new model based on the simple rules of the slime mold's behaviour may lead to the design of more efficient, adaptable networks (Sanders 9).

These types of experiments are being replicated in many research facilities around the globe, establishing a cache of demonstrable proofs for deterministic cellular intelligence in fungi. Moreover, the cellular intelligence of mycelial mat networks is not dissimilar from our own neuro-networks and internet networks. Ke Le, a professor of computer science, points out that: "While centralized schemes that rely upon global coordination and optimization may provide optimal trade-off solutions to balance efficiency and robustness, they do not scale or adapt well in large and dynamic networks" (Le et al. 184). As computer scientists looked for answers in nature, Le observes, "Through natural selection, biological systems often achieve a balance between efficiency and robustness via self-organization without any global coordination or information. One such system is the true slime mold *Physarum polycephalum* which self-assembles its nutrient distribution networks in response to dynamic environmental conditions" (185). The fact that our oldest ancestors (mushrooms) are able to establish elaborate but effective networks, selecting the organisms living in their micro-biome and the best means to find sources of food that parallel our neuron-networks and are superior to systems of internet networks, reinforces the notion of cellular intelligence in mushrooms.

Unfortunately, as modern sapiens we are unable to accept cellular intelligence due to an ironic blind spot inherent in our perception, that is, our conscious mind. As prisoners of consciousness, language and culture become the only markers of intelligence; it remains nearly impossible for us to conceive of an organism with a single cell wall to fit within our notion of sentient life. Although Fleckenstein does not explicitly support the notion of cellular intelligence, there are many

instances throughout her article “Bodysigns” that point us in that direction. For example, in a more recent article, “A Matter of Perspective: Cartesian Perspectivalism and the Testing of English Studies” (2008), Fleckenstein revisits the argument of double seeing. She notes Barbara McClintock’s experience viewing organism under a microscope as, “‘feeling for the organism’... McClintock describes studying corn plants in the field and through her microscope so intently that she achieved an unexpected intimacy” (Fleckenstein 110). If we consider Stamets’ theory of deterministic cellular intelligence, and acknowledge that we are fungal bodies whose accentors were these mycelial organisms responsible for creating the biome, then the biorhetical “double lens” of seeing must include perception from the body, that is, our cellular intelligence. Thus, the body and the conscious mind operate in tandem as the “double lens” of the new biorhetoric, and bringing us to the conclusion that human beings are not separate from our environments but prisoners of the Cartesian mind. In other words, we are not “self” and “other” but both. Therefore, when Fleckenstein argues, “From the perspective of the biorhetoric, I cannot separate myself as writer or teacher from the meaning and sites I create and create me” (773), I whole-heartedly agree from an ecological, eco-composition perspective, that is, from the perspective that our writing is shaped in equal measure by the physical environment (biosphere) and the discursive environment (semiosphere) (Cooper 189, Mahala 269).

There is another significant point of contact between Fleckenstein’s biorhetoric and the new biorhetoric: the view of ‘scientist as poet’ being the agent required for the formation of ideas outside dominant ways of thinking. To use the analogy of the Seneca bees, mainstream scientific theory would be the fields that orthodox scientists – as the majority of conformist bees – would continue collecting ideas from, while poet-scientist represents the nonconformist bees (approximately 5-10% of any hive population) constantly in search of new fields of inquiry. Fleckenstein’s belief in cellular intelligence is writ large in her article despite the fact that it was

published some fifteen years before cellular intelligence became a viable theory. Hence, her work now successfully merges demonstrative proof with dialectical reasoning, especially when she refers to Galileo's reconceptualization of "time," as an active agent in determining the velocity of falling objects (Fleckenstein 771, 775). Although she categorizes this action under "speaking" double, it is primarily a process of "double seeing," that is, observation paired with metaphorical conceptualization to find an avenue for linguistic expression within the very limited semiosphere of Galileo's era.

We may bring Fleckenstein's metaphorical reconceptualization (effectively) to bear on our understanding of the nature of social relationships and interactions between language, body and other via the mobius strip: "Like a mobius strip, flesh bleeds into words, words leak into material potential into discursive units, into names and "not" names" (Fleckenstein 772). Further, Fleckenstein explains, "Materiality and semiosis, bodies and signs, are divisible only on the level of language" (773). This metaphorical reconceptualization of self as indistinct from other – plants, insects, animals, all living organism - is now supported by the theory cellular intelligence, which in turn supports an eco-composition pedagogical approach based on the conception of mycelial networks and the web of interconnectedness between all living organisms. To be clear, the new biorhetoric does not claim that from a socio-economic standpoint that we are the "same," only that, on a cellular level, we are more interconnected with each other and the biosphere than what is generally acknowledged.

This paradigm perceives a human race trapped within the confines of its own consciousness. The new bioelectric frees us to acknowledge our evolutionary ancestry, i.e. our fungal bodies, locating intelligence in our cells thus meaning in our cellular reaction to language. It refutes the Cartesian claim "I think therefore I am," locating existence primarily in the body. To clarify, many have argued that the body cannot exist separate from the mind. While it is true that if the body dies, the

brain cannot live and vice versa, our existence is not predicated on the active conscious awareness of being. Naturally, the question becomes: what is consciousness? Most would accept the definition of consciousness as merely the “lens” by which we perceive the world. If intelligence rests within the cells of the body, then consciousness is merely the platform by which that intelligence can be projected, reflected and observed. Henceforth, we have established the importance of experiential knowledge (cellular intelligence ergo bodysigns) not in place of discursive knowledge but in relation to it. The new biorhetoric seeks a balance between the importance placed on the semiosphere and the biosphere; a balance that will, hopefully, create future learning environments conducive to innovative ideas as well as sustainable, social change and the embodiment of social justice.

Implications for The New Biorhetoric in the Classroom and Society

While Stamets’ theory of cellular intelligence, Cooper’s view of discourse as a web of interconnectedness, and Fleckenstein’s notion of ‘bodysigns’ may be relatively new ideas to West civilization, they are some of the longest held beliefs of some indigenous groups. Thus, it is with the indigenous understanding of teaching that provides the most appropriate pedagogical framework for the new biorhetoric. As a pedagogy, traditionally indigenous ways of teaching allow for authentic student expression and being, expressions that situate the individual’s identity and welfare as inseparable from the collective good. However, the abrupt shift from theory to practice requires a quick reorientation, of which I turn to John Clifford’s inquiry: “What do we teachers of composition hope to accomplish?” (Clifford 381). Though it seems a simple question, it is one that is not asked enough. Thus, the overarching goal of applying the new biorhetoric in any classroom is: the facilitation of a students’s development of their authentic voice through the reconceptualization of “voice,” while simultaneously equipping students with the skills to succeed in university so that they may become the ‘midwives’ of change and social justice.

In his essay, “Reconsiderations: Voice in Writing Again: Embracing Contraries” (2007), Peter Elbow notes that, ideally, the goal of teaching writing is to develop the self to give power to students and society ‘at large’ (Elbow 168). Yet, as most academics are wont to do, Elbow seems to presume that since language writes us (170), the “self” must be constructed and perceived by written or oral language. However, what if our students’s authentic selves cannot be first expressed through language, especially if it is their second language? If we define authentic “voice” as the genuine expression of the authentic self, then said authentic voice must align with individualized constructions of meaning. In other words, for the auditory learner, the authentic construction of voice is performed through the medium of language; for the visual learner, authentic voice is constructed “pictorially and spatially”; for the kinesthetic learner, “voice” is registered in and expressed by the body. Thus, from a perspective of the new biorhetoric, Fleckenstein’s “Bodysigns” provides us the avenues for “double speaking,” “double seeing,” and “double being” that become the viable means for an authentic construction of meaning and voice situated within the Universal Design for Learning protocol (Ministry of Education 65).

Further, how can students trust us to aid and facilitate the development of their authentic “voice,” especially in the environment of a first-year composition class in which many students come from various socio-economic-ethnic and cultural backgrounds? Here, I turn to Paulo Freire’s “Pedagogy of the Oppressed” (1971). Freire makes the claim that only the oppressed can develop a critical pedagogy to liberate both the oppressor and oppressed: “the oppressor, who he himself is dehumanized because he dehumanizes [the] other, is unable to lead the struggle” (Freire 47). Further he claims that the oppressed have internalized their oppression, thus those who become educated, that is speak in the voice of the oppressor, can at most be the midwife (facilitator) in the labour of liberation (48). Hence, the role of any teacher, especial from the dominant class, can at most be a compassionate facilitator who seeks to understand the long to term goals of the

student, and find the means by which to provide students the freedom to develop their own discourse, with the goal of finding authentic avenues of expression.

With regards to the new biorhetoric, and the mycelial mat as the analogy for this pedagogy, Freire points to such a pedagogy as a potential middle stage of liberation: “World and human being[s] do not exist apart from each other, they exist in constant interaction” (50). The new biorhetoric seeks to position students within the interlocking networks of the social relationships to community, within the discourse community (the university), their environments, and most importantly, their authentic self as formulated within their culture and style of learning. Thus, authentic “voice” becomes critical for Freire in that without being attuned to our true self, we are hopeless stuck in a cycle of oppression for the sake of acceptance and salary. Therefore, similar to Freire pedagogy, the new biorhetoric seeks to create the environment for change, not the change itself. From the semiotic perspective, this is the missing link; our current environment (Western Culture) is hostile to the pedagogies of the oppressed. Thus, the new biorhetoric is required to facilitate a deliberate and sustainable change in any learning environment.

Within the context of western culture, one might assume that threats to individual expression might be difficult to take seriously. However, Gabor Matë, family physician and addictions and mental health specialist, believes we (Western civilization) have separated our minds and bodies, individuals from communities, and, overall, compromise our authentic voice lest we risk losing social acceptance (Matë 173). Further, he argues that the toxic effects of our capitalist individualist culture establish a vertical power dynamic between teacher and student. By contrast, children of indigenous groups are raised in horizontal relationships of power; children are not seen as lesser than adults because the community requires the fullest participation of all members, and to ensure long term survival, each individual member is given acceptance. In other words, a horizontal relationship provides young students’ individual expression as the student’s identities

are never deemed to have “lesser” value. Within the first year writing course at University, teachers may claim to value all students but if some are deemed “A” students, others “B”, or “C”, and so on, then consequently we have established an environment where students perceive their value, hence the value of their authentic voice, in relation to the teacher’s assessment of their academic performance.

Further, Indigenous ways of teaching have three more significant points of contact with the new rhetoric: the self-initiate learner, self-analysis, and observational data and feedback. In the classroom, a pedagogy focused on the new rhetoric stresses the importance of student-initiated learning, a non-judgemental environment, self revision and analysis, enhanced awareness of interconnectedness, and teacher feedback. It may seem paradoxical for a pedagogy to stress both “non-judgement” and “observational feedback” but I believe it is the only way to encourage the development of authentic voice. Peter Elbow argues that, “[T]he worst part of grades is that it makes students obey without carefully thinking about the merits of what we say” (Elbow 397). There is no getting around grading our students; at the end of the term we have to assign a mark. However, an environment of nonjudgement focuses on what the teacher likes about their students writing. Moreover, just as indigenous groups taught skills to children with the end in mind, revision assumes the student could develop into an exceptional writer for the benefit of society in general. Thus, non-judgement is not the same as non-feedback and direction but the desire to resist defining and pigeon-holing students by their grades.

As for classroom activities that facilitate the development of ‘authentic voice’, Elbow recommends students engage in “ear training,” that is, “to learn to write language that readers actually *hear in their minds*” (Elbow 177). He argues that by having students read their words aloud, they can be encouraged to write sentences compatible with their speech, and have a better understanding of how readers hear the voice other readers hear when review their writing (177).

This practice forces students to closely examine their work for coherence and meaning, and to *feel* meaning in their bodies (179). Because the UDL is central to establishing an authentic knowledge and voice, Elbow provides a classroom or home activity that allows the kinesthetic learner to feel meaning in their bodies, the auditory learning to hear meaning in the voice, and the visual learn to see the connections between mental imagery and textual constructs.

Last, and perhaps most central tenant of the new biorhetoric is the ideal of the body as a compass to the discovery of authentic self, ergo authentic “voice.” In light of the theory of cellular intelligence, I turn to Eugene Gendlin, a philosopher at Chicago University, in defining the concept of ‘felt sense’ as: “The soft underbelly of thought...a kind of bodily awareness that ...encompasses everything your feel and know about a given subject at a given time...it is felt in the body...It is body and mind before they are split” (Perl 365). From the view of the new biorhetorics, body and mind are not split; an imprecise explanation would be the suggestion that they are interconnected. However, the new biorhetoric views the body and mind lenses of perception. Cellular intelligence was our fungal ancestor’s means of perceiving the world, a perception we have lost sight of, and are perhaps out of touch with, but it nonetheless remains part of the human experience as the body is the primary location of existence (not the mind). Save this distinction, Gendlin’s concept of felt sense parallel’s Stamet’s theory of cellular intelligence (Stamet’s 8), and is one that we can bring to bear in helping our students compose, revise and produce writing with an “eye” on the development of the authentic self via “felt sense”. As many students are unfortunately out of touch with ‘felt sense,’ this variably precludes the development of an authentic “voice.”

Sandra Perl describes felt sense as part of the writing process and recommends a few ways this technique can be useful in the first-year writing classroom. First, she claims: “When writers are given a topic, the topic evokes a felt sense [in the writer’s body] This topic brings forth images,

words, ideas, and vague fuzzy feelings anchored in the [sensing body]" (365). Perl continues: "They are looking to their felt experience, and waiting for an image, word or phrase that captures the sense they embody" (365). Thus, felt sense works as a center of inspiration as it channels the (inner) authentic-self giving voice to an authentic (way of) "being." Further, according to Perl, felt sense can be used in the process of revision, claiming that if we are attentive to how we feel, we can ask: "'what's missing?' we need to once again wait, to let a felt sense of what is missing form" (367). While Perl implies that this may be used for grammar and spelling, it is useful in imagining and audience and being careful (aware) of your intent as a writer (368). Usually, felt sense is a way to feel how ideas work together, what stands out, what needs reworking and what is missing.

Thus, Fleckenstein's declaration that "language is not the sole, perhaps not even the primary, means by which we make meaning in our worlds" is correct, however, her theory requires an additional step. It is the body's felt sense that evokes images in the brain that are then orally or discursively rendered into language. This premise is perhaps the biggest difference between Fleckenstein's biorhetoric and the new biorhetoric. As fungal bodies, the new biorhetoric reminds us that we are still part of nature, part of a vast network of life and intelligence made possible by deterministic cellular intelligence. Thus, primordial means by which we create meaning is also the primary location of existence. Though forgotten, our cellular intelligence remains in tact and accessible. By tapping into our bodily perception, we regain access to our birthright: the authentic self. As writers, it is not only the primary means by which we perceive our connections to the environment (biome) and other beings, but a means to reconceptualise our own existence. Now situated within the pedagogy of eco-composition, the new biorhetoric asks us to perceive, compose and revise our writing, and the writing of others, using the felt sense of the body as guide and as a critical lens. Moreover, the new biorhetoric provides a framework by which students of

various learning styles and cultures may access ways to construct individualized knowledge. With greater attunement between students' bodysigns and inner (neurological) development, the creation of a new discursive environment is possible, one with the potential to create the conditions for lasting social change and equity.

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