

# Art and the Creation of Mind

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## Abstract

*Harth (1999) argues that both Art and Language emerged in the human species as the eventual externalization of certain previously evolved internal cognitive abilities, viz., abilities to form images and symbolic representations in the brain, in an “internal sketchpad.” Bennett and Hacker (2003) argue, in contrast, that the very conceptions of images and symbols “in the brain” are incoherent. I examine the conundrum, employing Deweyan conceptions of the nature and function of Art, Language and Mind. I argue that deliberate and overt activities of representation, by organisms, of abstract qualities of the world, via manipulation of material forms, i.e., Art and Language, are fundamental and conceptually necessary conditions of Mind, and draw implications for education via the creative arts.*

## Introduction

In interacting with their environment, living creatures form organic representations of the things and events with which they are involved. For the vast majority of living creatures, this representation requires no conscious awareness of the representations, no “Mind.” In the human species, we find two unique developments: first, the development of conscious awareness of our representations of present, past and future events, conscious awareness of relationships, causal, spatial, temporal, of abstract categories (concepts), and of self. Such consciously accessible representations constitute the organism’s Mind<sup>1</sup>. The second development unique to humans is Art. Some might have expected me to say “Language” here, but, I take language itself to be an art-form, a specialized subcategory in the larger category of Art. Strangely, both Mind and Art appear to have emerged in our species together.

In my view, these two definitively human developments are not coincidentally, but causally linked. Art, considered as a process or activity (i.e., art-making) is the deliberately undertaken effort to construct external, inorganic representations of the artist’s conscious internal, organic representations, i.e., his or her Mind. There are two primary effects of art-making. The first effect is the enhancement of communication, and hence community, because the external representations make Mind public, open to perceptual inspection by both others and oneself. The second effect is an elaboration and clarification of Mind, because the creation of external representations requires a focused attention on, and hence conscious awareness of, one’s current internal representations. Art, in this way, creates Mind.

I will begin with a more thorough consideration of the two central concepts, first, Mind, and second, Art. I will argue that the *consciousness* of belief, of feeling, of intention, and of self that is Mind, emerges and grows along with, and as a consequence of, an emerging evolving capacity for art-making, the capacity for the externalization of the internal physical representations of the world in an organism’s brain. The externalized representation that is art may occur in linguistic communication, i.e., in discursive, symbolic, form, or, alternatively, in the external imagistic form that is commonly termed Art.

The conceptualization of Mind, of Art, and of their inter-relation, has significance, I believe, for the practice and justification of Art in education. I will assay a few general normative judgments, and suggest that an intrinsic justification for Art in education is grounded in the philosophical work.

## **Mind, Naturalized:**

'Mind' is a bit elusive, conceptually. Dualistic usages of the term appear still to dominate, with 'mind' being taken to refer to a non-physical, possibly "spiritual" something, that is somehow linked to, but never to be identified with, the thoroughly physical/biological brain. Mind has been construed, more naturalistically, as the total collection of one's "mental" attributes, that is, one's beliefs, thoughts, perceptions, desires, intentions, in short, all the products of brain activity. This is Dewey's 1925 formulation in *Experience and Nature*, which unfortunately provides no real barrier to the dualistic view, should the constitutive beliefs, etc., themselves be understood to be non-physical somethings. The rejection of dualism, which I believe Dewey clearly intended, is entailed only when beliefs, thoughts, feelings, desires, etc., all the "mental" attributes in question, are interpreted as natural biological states of ordinary material organisms.<sup>2</sup>

Contemporary neurophysiological science makes clear that the beliefs, intentions, desires, etc., i.e., the diverse collection of folk concepts which are commonly taken to be constitutive of mind, are best understood as biological states in an organism. (For general reviews, see Dehaene (2001); Gazzaniga (2004); Kandel, Schwartz and Jessell (2000); and Ganis et al. (2004)) Organisms have the biological capacity not only to actively respond to events in and around themselves, but to develop and maintain internal biological representations of those events as the necessary means to action. In evolutionarily advanced creatures the representations are physically instantiated in complex and dynamic brain states (Geary, 2005)

I conceive Mind, here, to be comprised of states of conscious awareness. This conception of Mind does not diminish the importance, and the predominance, of the implicit, automatic neurological events that occur without conscious awareness. These unconscious events have evolved to their current complexity to allow the organism to interact successfully with its environment; they subtend and make possible our limited conscious awareness. To be consciously aware is to attend, serially, to one particular event after another. To "attend" is to focus resources of brain and mind on a particular aspect of self or environment, while inhibiting response to competitive stimuli. My point, here, is simply semantic, to bring these terms, 'conscious awareness,' 'attending,' 'focusing,' together, as synonyms. But what is the process of conscious awareness, attending, focusing, biologically?

The biological thesis of the evolutionary continuity of living and non-living, of human and non-human, had its beginning in 1859; it was fundamental to Dewey's thought by 1926 (*Experience and Nature*). It is *the* fundamental concept in Biology; I make mention of this only because the thesis is today hotly contested, at least in the United States cultural context. So, I'll set it out plainly: all living things fall on a continuum of complexity that begins with non-living things, including *homo sapiens sapiens*. No insertion of ethereal Mind Substance was required to create humankind; all was achieved through the increasing complexity of organization, and the consequences thereof.

Chief among those consequences is the necessity of energy intake and continual maintenance of the unstable body organization. To persist, the organism must actively engage with its environment--this is as true for the human being as for the most ancient of protozoa. And it is for the sake of this interaction that bodies, brains, representational capacities, and consciousness have evolved. Sensory systems are, literally, *sampling* systems; organs that respond to certain events, and only to a very small proportion of the events occurring<sup>3</sup>. The "response" is an incredible cascade of biological activity that begins in the receptors, spreads rapidly through the brain, and ultimately may have effects on biological activity anywhere in the body.

The biological activity, as it develops over time, and at every point in the system affected, constitutes a representation of the event sampled. It is not that activity in the system of neurons occurs, and has the subsequent effect of forming a "something else" that is the representation.<sup>4</sup> It is this misconception that opens the way to conceiving the representation as something other than a dynamic biological state, as something that is therefore immaterial and mysteriously "mental."

At any moment a vast array of changing events are represented in the biology of the organism, and these representations are themselves in a dynamic state of continual interaction. These representations are natural signs (not symbols), i.e., they are dynamic biological states that have significance, in the Peircean sense. In Peirce's sense, the "interpretant" of a sign is simply the ensuing event, which is itself a sign (Peirce, Collected Papers, 8.343). The penultimate interpretant of the vast collection of significant representations in the brain is the ensuing motoneurone activity. The ultimate interpretant is the organism, as a whole, in action.<sup>5</sup> The point of the elaboration of complex representations of sensing events in the organism is to increase the probability that those actions will be life-sustaining and lead ultimately to reproductive success.

But, these representations do not yet, in my view, count as Mind, for Mind requires, conceptually, a conscious awareness of one's representations. Whence, then, comes consciousness?

Solso, a cognitive neuroscientist, examines the evolutionary development of consciousness, tracing this innovation to some 120,000 years ago, with a further major leap occurring about 60,000 years ago. These developments are indicated archeologically by revolutions in "technology, abstract representations and the creation of an externalized symbolic universe" (Solso, 2003, p. 51). Solso also argues that "the evolution of consciousness was a requisite for the production of art" (p. 26). Harth, neurophysicist and vision researcher, argues that both Art and Language emerged in the human species as the eventual *externalization* of certain previously evolved *internal* cognitive abilities, viz., abilities to form images and symbolic representations in the brain, in an "internal sketchpad" (Harth, 1999).

Eisner, artist and educator, maintains that the ability to form mental images is a prerequisite for the forming of concepts: "[C]oncept formation is an imaginative activity in which images in one or more sensory modalities are formed that stand for an array of qualities associated with a signifier" (Eisner, 2002, p. 21). This is an important insight regarding the centrality of "mental imagery" to our cognitive capacities. The arts, Eisner writes, "promote the use of our imaginative capacities so that we can envision what we cannot actually see, taste, touch, hear, and smell..." (p. 19). It is this ability to "*envision*," to spontaneously create inner representations, "mental images" of that which is absent, that led to the uniquely human impulse to consciously create external representations, i.e., to create both Art and Language. The elaboration and refinement of these external representations is the process of the further elaboration and refinement of Mind.

This is the conceptual link between consciousness, art-making, and Mind. But, in terms of cognitive neurophysiology, what is it to be "conscious" of one's own inner representations? What is it to be conscious of anything? Merker (2007) sets out a compelling neurophysiological explication of consciousness. He proposes an actual site in the brain which, he argues, is the locus of the focused attention that is consciousness. Merker identifies three functionally interdependent "decision domains." There are: 1. target selection, from among representations of "world"; 2. action selection, from among representations of "body"; and 3. motivational selection, from among representations of "needs." Intriguingly, the outputs of these three decision domains are found to converge in the superior colliculus. In the superior colliculus (which is a highly organized group of nerve cell bodies in the upper brainstem, just under the thalamus) there is a three layered arrangement of neural cells; each layer receives input from one of the three major representational areas of the cortex. Merker writes, "It is the only site in the brain in which the spatial senses are topographically superposed in laminar fashion with a common, premotor, framework for multi-effector control of orienting." (Merker, 2007, Sect. 3.2) Every sensory modality "receives obligatory representation in the colliculus" (ibid.), and "these diverse convergent inputs are arranged in topographically organized sheets layered one upon the other through the depths of the colliculus" (ibid.).

In the superior colliculus, then, there occurs an integration of "the massively parallel and distributed information capacity of the cerebral hemispheres into the limited-capacity, sequential mode of operation required for coherent behavior" (p. 63). This area of cortical convergence thus functions as what Merker terms the "synencephalic bottleneck," and the process of integration, Merker posits, yields the phenomenon of consciousness.

The functional role of consciousness is the integration of the three represented domains of world, body, and needs, in service of appropriate action. The input from the frontal executive cortex must compete with other inputs for dominance in this bottleneck, and it doesn't always succeed. The "executive" so-called higher input can be, and often is, over-ridden by the input from more primitive "lower" sub-cortical areas of the brain. The output from the superior colliculus is directly to the motoneurons, the "final common path" for brain output; this is the final "mental" stage that leads directly to overt action.

The integrative activities in the superior colliculus, Merker believes, constitute this nucleus the site of an "ego-center," (which, specifically, is the origin of the coordinate space which is "lodged in the head region of the simulated analog *visual* body"(ibid.). Merker's conclusion is worth noting: "There is reason to believe that the implicit "ego-center" origin of this coordinate space is the position we ourselves occupy when we are conscious, and that the analog body and analog world of that space is what we experience as and call our tangible, concrete body and the external world" (ibid.). The tripartite interface of body, world and need representations, Merker holds, "possesses the essential attributes of phenomenal consciousness" (ibid.). It is important to note that if Merker is right, one doesn't ever attend *only* to self, or to world, or to one's needs; the final integrated, conscious representation is always tripartite, it is *always* a representation of "self, in the world, with feeling."

Conscious attending can only occur serially, then, because "to attend to" is simply to "be the winner" temporarily, in the biological competition for the representational space in the superior colliculus. Merker's proposal, then, provides an answer both to "mysterians" regarding consciousness, and to Baar's puzzle, "How does a serial, integrated and very limited stream of consciousness emerge from a nervous system that is mostly unconscious, distributed, parallel and of enormous capacity?" (Baars, 2003).

Merker's proposal concerns the veridical representation of the world and the body, and the intimate connection of both with represented needs. But, the sole guarantor of the veracity of representations of the world in the organism is the ongoing action *of* the organism *in* the world. (This is an update of Dewey's view, that we test for truth via the actions we take.) Merker makes clear that the integrative functions of the superior colliculus emerged with the earliest mammals, and that its functions have remained stable, highly conserved, as the cortex evolved. The evolving cortex allows, though, for an increasingly sophisticated *content* of consciousness, while the *mechanism* of consciousness remains the same.

Given the enormous growth and increase in complexity of the human cortex, and its consequent weight in the integrative system, it is a small albeit hypothetical step to imagine a gradual emancipation of the mental representations from the check of the automatically ensuing actions. A momentary "hesitation" prior to action would be advantageous, allowing the integration of the dynamic content to proceed a bit longer, prior to action. Capacity for such a hesitation could develop, over evolutionary time, into the prolonged periods of reflection, contemplation, and meditation that are so characteristic, and definitive, of human thought. (As smart as my dog is, his decisions are instantaneous; he never becomes "lost in thought," or "weighs" the pros and cons of his future actions.)

It is the entire set of interactivities I engage in that constitute my "experience." Represented internally, they may be consciously attended to, or not, or they may be permanently inaccessible to conscious attending. I consciously attend to, I am aware of, only a small portion of these representations, those "judged worthy of attention." To say a representation is "judged worthy of attention," though, is simply a round-about way of saying that that particular representation won the biological competition for dominance in the superior colliculus.

What, then, is the content of consciousness, the "it" that we are conscious of? Is it the object in the world, or is it our own inner representation of the object in the world? This is a matter of some controversy. Neuroscientists Kandel, Schwartz and Jessell maintain that we are conscious of, attend to, our own inner representations: "Colors, sounds, smells and tastes are mental constructions created in the brain by sensory processing. They do not exist, as such, outside of the brain." (Kandel, Schwartz and Jessell, 1997, p. 37.)

Bennett and Hacker, neuroscientist and philosopher, respectively, counter that such a view is metaphysical, not scientific. They assert “No scientific experiment could possibly prove that grass, as it is in itself, is not really green, but only appears to us to be so...” (Bennett and Hacker, 2003, p. 130) All that can be proven is that “objects reflect light of certain wavelengths that affects our eyes and brains in such-and-such ways, as a result of which we see what we call ‘their colour’.”(Bennett and Hacker, 2003, p. 130)

The implication, Bennett and Hacker write, of that metaphysical view is that “we are subject to perpetual illusion. The world as we experience it is largely a figment of our imagination...that is, of our image-making faculty.”(Bennett and Hacker, 2003, p. 130) This implication they find impossible to accept, and thus consider a successful *reductio ad absurdum* to have been accomplished. It appears, however, that neuroscience must have the last word. If Merker is right, consciousness is the last step prior to action, and the “what” we become conscious *of* are our own biological representations.

Does this mean, then, that there is a “veil” between my self and the rest of real world? No. In this I believe Dewey reached the correct interpretation, over 80 years ago, that the interaction between organism and the rest of the world, is the point of access to nature, not a veil. It may be unfortunate, perhaps, that I am not in interaction with *every* feature in the real world. I am limited by time, by space, by geography, and I am limited by my lack of sensitivity to the vast majority of events in the world. But, the effect of science has been to increase dramatically the range of events I can be in interaction with. Because there is coherence in the world, I am able to develop representations that are, increasingly, both coherent and veridical.

### **Imagery, Internal and External**

Let us turn now to the matter of images.<sup>6</sup> There are two fundamentally different senses of the term that must be distinguished. The first sort of images are internal biological states, e.g., perceptual images, representations of present interactions, and what might be termed “mental images,” representations of that which is absent from present interaction. The second sort of images are external, perceptible, public, and material. The internal image is so radically different from the paradigmatic external image that even to use the same term seems problematic. However, there is a generally experienced phenomenon to which the term is applied, and I think few would deny the ability to generate internal images. Yet, despite the common phenomenon, and the common usage of the term, there is considerable controversy regarding internal mental images, their existence, their nature, and their role in cognition.

The debate about mental imagery and its role in cognition has a long history; Pylyshyn (1973) sets out an early argument against mental imagery as an explanatory concept. He opens, however, with the proviso that mental imagery is in fact an experienced phenomenon. “...it should be stressed that the existence of the experience of images cannot be questioned. Imagery is a pervasive form of experience and is clearly of utmost importance to humans. We cannot speak of consciousness without, at the same time, implicating the existence of images.” (Pylyshyn, 1973, p. 2). Pylyshyn argues, however, that neither phenomenal images, nor words, play a prominent role in cognition, arguing that a highly abstract propositional conceptual system is required instead, and that this conceptual system is not accessible to consciousness. Regarding mental imagery, his conclusion is in one aspect quite correct: a mental image is a thing decidedly different from a static material photograph. He makes an important re-conceptualization of a mental image, in a way that eliminates its problematic aspects.

“...[T]he functional mental representation is not to be identified with the input to a perceptual stage but rather with the output of such a stage, inasmuch as it must already contain, in some explicit manner, those cognitive products which perception normally provides...An ‘image’ qua representation in our sense can certainly be selective, generic, abstract, and even unconscious inasmuch as the cognitive products of perception can be all of these.” (Pylyshyn, p. 12)

It is in this sense that I understand internal mental images. An external image is stable, specific and particular, and can be well-defined and detailed; an internal image, proxy for abstract cognitive products, is none of the above.

Damasio, a neurophysiologist, holds, not only that mental images exist, but that, *contra* Pylyshyn, they are crucial in both perception and thought. According to Damasio, the “what” that is seen when something is seen is not an object in the world, but rather is a visual image, a representation in the brain, that results from our interactions with the object. “The object is real, the interactions are real, and the images are as real as anything can be. And yet, the structure and properties in the image we end up seeing are brain constructions prompted by the object...” (Damasio, 1999, p. 320) Bennett and Hacker (2003) reject Damasio’s claim that “seeing” an object involves the process of creating an image in the brain of that object. They do allow that images in the mind can be “conjured up” or may simply appear unwilled. But even then, there is no “seeing” of the images. “It is a mistake to suppose that what we perceive is always, or even commonly, an image, or that to perceive an object is to *have* an image of the object perceived.” (Bennett and Hacker, 2003, p. 138)

Philosopher Alva Noe makes clear the sceptical stakes with his 2002 title question, “Is the visual world a grand illusion?” Relying on current work in perceptual psychology, Noe rejects the traditional notion that fragmentary and continually changing visual information received at the retina is somehow integrated by the brain to form a single, stable, detailed and coherent representation (image) of the world. Instead, he argues that the brain does not create a detailed model of the perceived world, but rather relies on the current information in the world, which is accessible to the organism with movement, as the sole repository of detail. When one is presented with a cat, Noe asks, “Why represent the cat in all its detail when all the information you need is available, when you need it, by eye and head movements?” (Noe, 2002, p. 10). This conclusion appears to be correct. Mental imagery is quite deficient in many respects. It does not contain much in the way of detail, neither does it contain the “big picture.” It is fuzzy, fleeting, and constantly in flux. This is not a problem in the ordinary case, when the organism can rely on the relatively stable and coherent world to supply it, via continuous interaction, with the detail and stable structure required.

But, what happens when one’s vague, non-detailed, conceptualized image is *not* of an object that is literally present to the individual? The reliance on the world then fails. In imaging the non-present, namely, the past, or the future, or the possible, we have no such perceptual support. Nor do we have any prospect for public communication regarding the things imaged. I believe that the ability to image the absent is the uniquely human development that leads to the uniquely human resort to “artistic” expression, to the external representation of internal “mental” images. In creating the external material image, the artist stabilizes the fleeting internal image, and determines a degree of detail, and at the same time, makes what was internal public. The development of Art is coincident with the development of Mind, of conscious internal representation; moreover, there is a reciprocal “bootstrapping” between an increasing facility in artistic expression of Mind and the ever increasing complexity, specificity, detail and stability, and hence usefulness, of the individual Mind itself.<sup>7</sup>

The “mental imagery” we possess is in part visual, but also in large part conceptual in nature, i.e., it includes as a linked component, Pylyshyn’s “cognitive products” of perception. To produce a material representation of the mental imagery is never simply a matter of copying off what is “in the mind.” It is to create, consciously, a new object in the world that is to some degree a representation of the visual/conceptual inner representation. The impulse to engage in this kind of activity is uniquely human. Not having images of the absent to contend with, no other animal feels the compelling need to create Art.

## **Art, and Its Creation**

I will turn now to a consideration of the concept of Art, and creation of artistic images. Lorand (2002) has argued that the search for a philosophical answer to the “more general question concerning the nature of art”

has for too long been suspended, and considers possible explanations. Perhaps the question is set aside in deference to Dickie's "institutional" solution: that art is whatever it is that is accepted as art, by art authorities. Or, perhaps, reluctance to grapple with the question results from Weitz's Wittgensteinian notion that "art" is an open concept built on family resemblances, and therefore confounds all efforts at delimitation. Lorand argues persuasively in favor of resumption of the philosophical task. Current research on the earliest human art (e.g., Clottes, 2003) reveals something of the nature of Art.

Lewis-Williams, expert on the rock art of the San and on European Upper Paleolithic cave paintings, takes up the question in considering the anthropological origin of art in human prehistory. He believes that art originates "when mental imagery is turned into visual imagery" (Lewis-Williams, 2004, p. 10) and, like Solso (2003), takes the emergence of art to be a significant marker in the evolutionary origins of the modern human mind. He sets out the two critical questions: How did human consciousness evolve?, and, "In what ways is consciousness linked to the making of art?" (Lewis-Williams, 2004, p. 40) His aim is to understand the acts and intentions of the early image-makers, some 30,000 years in the past, who made images long before any conception of art *as such* had emerged.

Lewis-Williams recognizes that the necessary condition for art was the evolution of a neurophysiology that enabled the development in *Homo sapiens* of a new form of consciousness, one that could develop, maintain, recall and manipulate complex mental imagery, that could conceive that mental imagery as captured in physical form, in drawings or sculptures, and that could recognize the connection of both sorts of imagery to objects and events in the world. (Lewis-Williams, 2004, p. 93)

When mental imagery became external imagery, when mind became publicly accessible and open to social interpretation, complex social rituals and meanings could be developed around the artistic (mental) images. Lewis-Williams emphasizes that "the making of art is a social, not a purely personal, activity. Art serves social purposes, though it is manipulated by individual people in social contexts to achieve certain ends." (Lewis-Williams, 2004, p. 44) He notes that the European Upper Paleolithic Cave Art was unlikely to have been the work of isolated individuals, because a coordinated social industry was involved, in the making of paints from red ochre, the making of charcoal for drawing, and even the necessity, in some paintings, of the construction of scaffolding. Moreover, traditions of conventional representation are observed, and remain recognizable over tens of thousands of years, indicating a conserved social history and, most likely, deliberate instruction in representational conventions.

With the development of an ability to image the absent, it became possible for humans to conceive of an alternative reality. In Lewis-Williams' words, there emerged "a 'parallel state of being' or 'spirit world' so memorable and emotionally charged that it had a factuality and life of its own." (Lewis-Williams, 2004, p. 93) Given the unlimited possibilities of internal images of self and world, biased always by one's strongest emotional motivations, and free from the checks imposed by action, it is clear that specification and elaboration of these images through art-making would have had enormous effects both in the constitution of the individual Minds of the image-makers, and in the development of the social life of their communities.

Lewis-Williams points out that the astounding Cave Art, the paintings, etchings, hand stencils and abstract signs, deep inside the treacherous terrain of the limestone caves of France and Spain could *only* have been created only as representations of the image-maker's internal images of the beasts. He argues, further, (and controversially) that the capturing of those mental images on the rock walls was likely to have been aided by the induction of an altered state of consciousness in the image-maker. Such an altered state could perhaps have been induced by hallucinogens, by elevated CO2 levels in the caves, or by ritual trance inductions via music and dance, or simply by the mind-altering sensory deprivation of the caves themselves. The Cave artists were gripped, he believes, by vivid visual images—hallucinations—of the spirit animals they captured emerging from the rocky walls.

The passionate commitment to the Absolute Reality of "another world," i.e., a world other than the one we ordinarily observe and act in, is still a dominant human trait. That the conscious representations

unchecked by interaction are possibly non-veridical seems not to alter the human attribution to them of reality. Religious belief and Art it seems are two branches of the same tree.

All of the foregoing considerations have bearing on the question of the nature of Art. Art, contra Dickie, is not what the authorized authorities say it is. Nor, contra Weitz, is it indefinable. The conception of Art proposed here is that Art is always present whenever a person has worked to create a material representation of an inner image, idea, feeling, etc., whenever there is created an external representation of an inner representation. This is a broad and widely inclusive conception, clearly. The Cave Paintings of Chauvet immediately and unshakeably strike the observer as Art, an appropriate categorization, given this intentional criterion, which they so clearly fit. Other art-works are more obscure--I think here of highly stylized works, or works that seem to be entirely explorations of color, line or form. I think, for example, of "pop-art," or of the La Tene creations. The same questions are relevant: What sort of ideas were in the minds of their creators? Was it simply an effort at creation of an esthetically pleasing form? Or was there also something deeper and more mysterious that was being represented in the artist's work? Would the deliberate placement of an authentic Hardy's Big Boy in a museum of art be a work of art? By the criterion proposed here, it certainly would.

By being in the presence of the art-work, we are in the presence of the representation of the mind of the artist. Dickie's view entails the social dominance of "authorities," those who interpret the work of others, and pronounce it art, or not. But the status of interpretor, and interpretant, properly belongs to every human being, with respect to his or her own works and to the works of others. Any work that is a material representation of the Mind, of the Self, of a human being should be recognized, named, and respected as Art.

The increasing scope of conscious awareness that is sustained by the active pursuit of the external embodiment of internal representations, that is, by art as image-making, led in fairly recent history to what Dewey describes as the *idea* of art as a conscious idea.<sup>8</sup> Dewey calls this conceptual breakthrough "the greatest intellectual achievement in the history of humanity." (Dewey, 1934, p. 26) Dewey notes the conceptual linkage of humankind and Art in Greek thought. "The conception of man as the being that uses art became at once the ground of the distinction of man from the rest of nature and of the bond that ties him to nature." (Dewey, 1934, p. 26) Art was conceived as the distinguishing trait of man.

Dewey, in *Art as Experience*, writes that "what is distinctive in man...makes it possible for him to carry to new and unprecedented heights that unity of sense and impulse, of brain and eye and ear, that is exemplified in animal life, saturating it with the conscious meanings derived from communication and deliberate expression." (Dewey, 1934, p. 23) The statement startles me with its prescience. The only addition to be made is that "communication" and "deliberate expression" are causally *interdependent* with the creation of conscious "mental" meanings, with every advance in the one leading to further advances in the other. Once the ball is rolling, there is no stopping it.<sup>9</sup>

Dewey sees the artist at work as engaged in a thinking process that is actually *more* demanding than one that proceeds by relations of symbols. The artist is thinking "in terms of relations of qualities." (Dewey, 1934, p. 47) And this thinking takes the form Merker describes, first in action and then in observation of the effects of action: "A painter must consciously undergo the effect of his every brush stroke...he has to see each particular connection of doing and undergoing in relation to the whole that he desires to produce." (Dewey, 1934, p. 47) Dewey also gives attention to what I take to be the central artistic relation of meaning, the emerging art-object as an expression of one's inchoate inner representations of meaning. "...[T]he expression of the self in and through a medium, constituting the work of art, is itself a prolonged interaction of something issuing from the self with objective conditions, a process in which both of them acquire a form and order they did not at first possess." (Dewey, 1934, lw.10.71)

Dewey refers to the role of the activities of artistic production in framing, refining, clarifying elaborating one's ideas, i.e., inner representations. Speaking of a linguistic art-form, he writes,

“When an author puts on paper ideas that are already clearly conceived and consistently ordered, the real work has been previously done. Or, he may depend upon the greater perceptibility induced by the activity and its sensible report to direct his completion of the work. ...Even the composition conceived in the head, and therefore physically private, is public in its significant content, since it is conceived with reference to execution in a product that is perceptible and hence belongs to the common world.” (Dewey, 1934, lw.10.57)

Granger makes a similar point: Good writing “means that you must be willing to put something down on the page before you are really sure of what it is you want to say.” (Granger, 2006, p. 55) This accurately represents, I believe, the experience of writing. The writing itself, the active, concerted effort to put one’s own ideas into *words*, is the process that clarifies, elaborates and enriches the ideas one then comes to have. The creation of an external representation is a necessary process, certainly, if complex ideas are to be adequately communicated. But it is also, and far more importantly, a necessary process if those complex ideas are to be formed in the first place. The artistic process is a matter, not of stating, or even of discovering, but of creating one’s own refined and elaborated inner representations, in the form of concepts, images or thoughts. It is a creation of one’s Mind.

And now I must make the promised educational connection. Art-making is the most fundamentally, quintessentially, *human* thing we can do. How can we reasonably claim to be educating our young, if we fail to immerse them in the practices of art-making? Clearly, I think the answer is we cannot. We do a great deal of harm to our children individually, if we lead them to omit the formative power of Art from their lives. Art is not just for enjoyment, or appreciation, or fun, or a little “down” time, a vacation from the serious curriculum of the school. It is not a “frill.” It is that which is most distinctively human. Art-making is the process by which each person, acting in the world in a social context, in a very real and literal sense, creates, revises, enriches and expresses his or her own Mind. Mind is itself the creation of Art.

## Conclusion

In this paper I set out with a biological theory of mind, that the concept of “mind” is simply a broad abstraction covering an array of consciously accessible dynamic organic states, which are themselves the products of biological/physical/chemical and evolutionary, events. I set out a current biological conception of consciousness, and considered the effects of a consciousness of internal representations, when these become disconnected from immediate action. I discussed the origin of human image-making, of Art, and its effects socially and individually on the creation of Mind. And finally, I made explicit a few of the clear educational implications. Chief among these is, simply: Art creates Mind, and we in education ought not to neglect it.

## Notes

1. Others may include unconscious brain events in the concept of Mind; these appear to me to be so uncontroversially biological states as to not require special conceptual treatment.
2. It is an empirical question whether the ancient terms can be effectively separated from their traditional meanings. It is doubt about this that leads Patricia Churchland, to eliminate them, root and branch, concepts and terms. I am a bit more hopeful that the term ‘mind’ can be useful in referring to set of conscious internal biological representations, i.e., a small subset of the dynamic brain states of an organism. The biological activities of the organism with respect to these states could then be termed “mental.”
3. E.g., we visually sense only a fragment of the electromagnetic spectrum from about 400 to 700 nm.
4. It is a classic category mistake, akin to saying, “I see the billions of individual exchanges of goods, but where is the economy?”
5. Though the network of signs and interpretants does not end here, or anywhere....
6. There is a great body of work on this issue; see, for example, Michael Tye (1991), *The Imagery Debate*, and Ned Block (1981) *Imagery*.

7. For an early view of the connection of visual imagery to thinking, see Arnheim (2004/1969).
8. For recent work on Dewey's theory of Art, see Alexander (1987); Granger (2006); Jackson (1998);
9. One might think of this as a "positive feedback" system; I prefer the visual metaphor.

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