Movement and Perception

Sam Gill

I want to tell you a story, a description of a scientific procedure really. It is not, I'm sure, a story you are likely to soon forget. It is disturbing in some measure, but endlessly fascinating. So here goes. As we all know, new born kittens take a few days to gain the perceptive ability to see. This scientific procedure separated newborn kittens and kept them in the dark for extended periods. When they were allowed to be in the light they did so under the following circumstances. The kittens were divided into two groups. One group was allowed to freely move about their environment as any kittens do. We've all enjoyed watching newborn kittens as they crawl around and bump into things and explore with their cute little paws and roll about seemingly randomly. The other group, let's not forget them, were actually placed in little carts attached to paired mates from the first group. Now I have never seen a photo of this, so I can't quite imagine how these carts worked or what they look like nor how the other kittens were actually so "free" to move about their environment having to drag a mate in a cart with them. Getting past these technical concerns we must also set aside the emotional feelings we have for this whole lot of kitties being subjects in experiments, especially when we find what was discovered. So here it is: the self-moving kitties developed normally and were able to "see" after several days; however, the kitties that were moving, but not self-moving, were functionally blind and never as they grew into cats gained sight.

Yikes! If we are to believe these results, and the experiment is reported by respectable scientists,[1] there are striking implications and these build directly on the point I have been developing in the last two lectures. The kittens in the cart supposedly experienced the same environment as their paired mates pulling the cart. Their bodies supposedly moved through approximately the same spaces and in the same patterns as did their mates. However, only the mates that proprioceived their space, that is, actually encountered the environment by an actively engaged sensorimotor system that both directs muscular actions as well as receives and responds to the consequent and related environmental interactions gained functional sight. Only the kitties that came into actual physical contact with their environment, that experienced the environment through touching it developed sight. Presumably the cart kitties eyes were biologically identical to the cart-pulling kitties, yet they did not develop the neurophysiological base programmings that amount to what we understand as "sight." This story provides evidence of understanding Sheets-Johnstone's notion of the "primacy of movement" and the "discovery of self and world" a rather literal and neurological understanding.

Similar results have been documented for the congenitally blind who have, through later life surgical procedures, gained the capacity for sight. Many of these people who, in a romantic view, should experience the miracle of sight by instantly being able to see everything, report that they see little more than annoying blotches. Most prefer to continue to act and live as though sightless.

[1] Varela, Thompson and Rosch, *The Embodied Mind* (1991), p. 175.

Thus, we begin to understand that sight, vision, the visual world is not comprised of some objective images cast upon a screen in our brains that give us a "picture" of the world. Rather sight is based in proprioceptive sensorimotor experience and is actually dependent upon it.

This insight offers us revelation about another of our received understandings of how we operate in the world that have undergone major revision especially in the last 50 years. We continue to hold to an understanding of perception in terms of the model of the simple camera obscura. This image has been useful since the nineteenth century. We analogize our perceptive selves as being like the camera obscura. That is, we are like a box with a pin hole punched into it. As we see in the diagram, light reflecting off the object outside of our bodies (our box) passes through the hole and creates an image on some surface within the box (our minds, our memories, our brains). The image in the box, in our minds, is an exact replica of that object outside, save a bit of adjustment for size, depth, and orientation (the image in the box is inverted) all of which we allow, I suppose, for the brain to adjust to.

In this simple presentation it seems actually rather silly to hold this view, but we need only remember how strongly attached we are to the truth of the eye witness and to objectivity or the objective perspective in education, law, and many other areas in society. I'm endlessly badgered by my students when I ask them to write creative and engaging essays about their subject. Most hold to some identity of the academic with the objective. The great majority of educational testing from grade zero through graduate school is based on the unquestionability of the objective even though philosophy and even science have shown for a century that such a position is untenable. I always find it incredulous that the examination of Supreme Court nominees always seems to center around the degree to which they can be objective about the interpretation of the law. Yet, every nominee is easily labeled by all as having certain leanings. And that sitting justices each have a very consistent record of how they interpret the law. In light of some obsession of objectivity in this context, it is very difficult I think for us to even understand what might be understood to be the meaning of the words "judge" and "judgment."
The kittens demand the end of camera obscura and the end of objectivity. If any of the kittens can be said to have had an objective (i.e., not based on their own personal subjective experience) experience of the world it would be the cart-bound kittens, yet, as we learned they could not see at all.

Maurice Merleau-Ponty, an existential phenomenologist who died in the 1960s, developed an entire ontology (that is, a theory of being) that was based on interaction between the percipient and the perceptible, that is, the one who perceives and the world that is perceived. We will take this up in greater detail later on, but it is important to note that since mid-twentieth century there have been many who have demonstrated in increasingly undeniable terms that self-movement is essential to the development of even our perceptual capacities and very broadly to the character of what we perceive.

Again, this is relevant to our efforts to understand dancing. Dancing as self-movement with qualities of moving and interacting with the environment that are prescribed by culture and religion clearly has an impact on even our most basic experiences of perceiving the world in which we live. At this point we can begin to appreciate that if, as a child, I study ballet I'll perceive a different world than if I grow up in the streets defending my space by break dancing. I'll extend this example more fully.