The Will to Perceive

Turning on the motors of perception

Lawrence Smith

One of the basic principles of the A.T. is recognition of faulty sensory awareness. I think that all of us who have received traditional training in the A.T. have been warned not to use sensory awareness as a dependable guide, but, instead, to use reason in guiding our attempts to improve use. But there is a difficulty with such an oversimplified protocol, and that difficulty is that thinking (and moving) depends on sensing.

Further, higher cognitive functions are constructed on lower ones, and are dependent upon their functioning. As our brains developed from more primitive, reflexive structures without conscious cognitive processes, that is, as the evolving brain slowly developed regions for cognitive functions, the older structures were not replaced, but remained as a necessary foundation. Higher cortical functions cannot function well without the mid-brain functions – emotive and sensory. In his book, Descarte's Error, Antonio Damasio describes cases in which patients with brain damage that is restricted to brain centers related to emotional response become unable to apply reasoning. In tests, no fault can be found with their cognitive abilities, yet, in their lives, they become unable to act on their reasoning in the absence of a feeling that a decision is the right or wrong one.

The same can be said of sensory awareness. A being will function well to the extent that it is well-oriented sensorially -- shutting down or ignoring sensory input will lead to diminished functioning in all domains.

All material for cognition arrives via the senses. We know because we see, hear and feel. Every bit of sensory information that enters effects immediately and directly the motor cortex. We move to sense and we sense to move – in vertebrate motricity, sense and movement are inseparable. The senses function through movement. For example, our proprioceptive sense – the sense of where our parts are in relation to each other – comes only from movement. This is because muscle spindles and joint receptors (golgi bodies) cannot measure static conditions, they can only measure change. The same is true of the canals and saccules of the inner ear. These structures can only measure angular and linear acceleration\deceleration and tilt. Without the movement of fluid against the cilia lining the ear canals there is no message – without the movement of otoliths within saccules the of the inner ear, there is no signal to the brain. The saccades of the eyes keep the image moving on the retina, because the brain must constantly compare the stimulation to cones and rods in order to "see". Sometimes the movement is created from within, as in the stretch reflexes that stimulate constant push and pull between opposing muscles, lengthening and shortening muscles alternately, and sending a constant stream of messages from muscles fibers to sensory motor and motor cortex; and sometimes the movement comes from without, as is the

case with sound waves striking the tympanic membrane that are read in the auditory cortex as sound. But all knowledge ultimately comes through movement.

We have to ask ourselves, then, why sensory information might seem faulty. Is the fault with the organ of sense? Is it with the brain's interpretation of signals from sensory nerves? I think that there are two fundamental sources for the problem of faulty sensory perception. The first is concentration, which we are taught in school is what is required for proper learning – we learn to shrink our perceptual field, to narrow it to take in one subject only. This obviously results in a poor learning condition, as the foundation for good functioning is first, special orientation, which requires open focus so that the eyes are orienting, the naturally non-aligned structure of the body is responding to gravity's pull by constant adaptation throughout, etc. Also, much of our work today is close-focus work in two dimensions – paperwork and computer screens. The tendency is to lose special orientation in these conditions. One needs to learn to maintain open focus while doing close-focus work or work in two dimensions, as we don't really have evolved reflexive means that function well naturally under such unnatural conditions.

The second (which is, in a sense, the same as the first) is stabilization, which limits the movement required for a sense of ourselves within our environments. We know that the reasons for stabilization are many, but I think Alexander's explanation is still the best: "unduly stimulated fear responses". The child hunching over a drawing with wrinkled forehead and a labored look on his face is not "trying hard" to make a nice drawing, he is afraid of *not* making one. Afraid of drawing outside of the lines, afraid of not getting the approval he seeks – not a fear of which he is even aware, but fear none-the-less. The same fear causes much maladaptation after injury – we brace and contract out of fear of pain, and in so doing, we limit our ability to heal. This can be a very subtle thing – I have struggled most of my life with vocal problems that seem to come from a fear of criticism from my father -- I could never speak before him without fear of judgment. At age 57 I still need to look for this fear whenever I speak. I need to question myself to improve.

We know about the startle reflex – that universal reflex which causes us to retract, and to stiffen the limbs. The startle reflex generates the same pattern as does the Moro Reflex (it is perhaps the same thing), which is a reflex studied in humans and apes. If a mother ape is nursing a baby, and a predator arrives, the mother will drop hold of the infant and flee to the trees – she needs both her arms to do this effectively. The infant will reach out and clutch at the mother's fur. One can hold a newborn baby and test this reflex by making a quick movement as if to drop it. The pattern elicited is stereotypical. Supposedly, this reflex disappears in early childhood. But, go up behind somebody (someone smaller than you are), and yell "BOO", and see what happens. It is exactly the same pattern. Pulling the head back and down is a fear response, and is evidence of over-stimulated grasping reflexes – the Moro reflex is a grasping reflex, resulting in hardened trapezious muscles, which usurp the function of sub-occipital muscles that normally take the head's weight and keep it moving.

Recalibration

As all sensors function as comparators, it is not so surprising that students often respond to the guidance of an Alexander Teacher with surprise – the most common example is that they feel like they are leaning forward when we guide them out of pressing the hips forward and, in effect, leaning back. This is like what happens when we come in out of the cold and place our hands under running water – it feels hot, even when it is not. The person who has been sitting and standing with the trunk or torso inclined rearward habitually needs a kind of recalibration of their proprioception. (In fact, this sense that students new to the A.T. have of leaning forwards is perhaps not really faulty kinesthesia. The trunk, when well organized over the legs, *does* have a forward lean, so that the primary muscles of support are posterior – the extensors that are posterior to the spine support well the weight that is forward of the spine when there is a slight forward inclination of the trunk.)

As I stated above, the constant interplay of opposing muscles is necessary for good proprioception. A light alternance in tone between opposing muscle groups sends constant signals that help to orient us spatially. It is possible, indeed, in our world, even likely, that some opposing muscle groups will simply set against each other, creating relative stability at a particular articulation (Alexander's "unduly stimulated fear responses"). In this case, sensory information is significantly diminished.

So what is the way out of this "faulty sensory awareness"? I think that it is primarily through a process of questioning. Someone may habitually stand with all of their weight on their heels, but if you ask them to bring awareness to their feet, and to try to notice how their weight is distributed on their feet, they will be able to tell you where their weight is. Of course, 5 seconds later, they will have left this awareness behind, and will again be habitually standing on their heels. So their task, when you are not there to remind them, is to pose certain questions to themselves, questions such as, what is the condition of my skull upon my spine? Is it settled into a position or is it in a condition of subtle oscillation in which reflexes can play with its mass based upon changing conditions? Bringing awareness to the ribcage, one asks if the ribs are allowed to move during inspiration and expiration. This process of questioning serves to restore the subtle movement required for good sensory awareness. And when you are there to assist, you help to calibrate their proprioception.

Alan Berthoz, in his important book, *The Brain's Sense of Movement*, explains how signals from visual sensors travel to the visual cortex. He describes a circuit that passes through the motor cortex before arriving in the visual cortex. It seems that part of how we make sense of what we see is by imagining what we could do with it. That is, if we see a stairway, the body's sense of walking up stairs is important to the processing of the visual image of the stairway.

Further, it has been suggested that movement is required for us to have a sense of reality, as it is only through change of perspective (triangulation) that we know that there are three dimensions.

Rig**ht brain vs left**

Recent research into visual perception has led to a stunning observation. When we are seeing, as much as 80% of the input to the visual cortex comes from sources other than the optic nerve. Most of what we "see", in other words, comes from memory, and not from actual sensory perception.

Have you had the experience of being in a dance or tai-chi class or any group class that involves following a teacher – imitation of a model as primary pedagogy? In my experience, there are always one or two students in such courses who seem to be doing something quite unlike that which they are supposed to imitate. They watch the teacher and themselves imitating the teacher, side by side in the mirror, and they do something very different from what the teacher is doing, and they seem not to perceive it. Why is this? Is it faulty perception? A visual problem?

Let's look at it another way. You are walking down a street, lost in thought, and you suddenly look up and don't know where you are. The buildings don't look familiar, and yet, you soon realize, you are on a street that you have walked hundreds of times. You have looked at these buildings, but have somehow failed to see them.

Both experiences demonstrate something about perception, and that is that we do not necessarily *see* what we are looking at. Pure visual input is incredibly complex, billions of shapes and shades and shadows – too much to take in. So our brains simplify what is before us and give us a simplification – tree, house, maybe brick house – but we do not constantly truly "see" what we are looking at. There is a translation of visual perception into simplified vocabulary. This is where the left brain comes in, takes what the right brain truly sees, and makes it into something useful. Alain Berthoz, in his book *The Brain's Sense of Movement,* wrote that part of the way we understand what we see is by what use we could make of it. We understand a stairway, in his example, by the physical sense of using a stairway. If one has never used a stairway, he will not perceive one in the same way that it will be seen by someone who has. So the left brain makes a us a simplified version of what we actually perceive in order to fit the perception within our experience, to make sense of it. It tells us little lies, sometimes big ones.

Why hands-on work?

I have one client who is a tai-chi teacher with 45 years experience in the martial arts (25 in tai-chi). He knows a lot. Why does he bother coming to me? I have nothing to tell him. He *understood* the Alexander Technique before coming to me. But, I can place my hands on him, sense where he is fixed or asleep, and, also with my hands, send little messages for him to follow that lead him to a more open, lively and adaptable condition. I can speak directly to his right brain, to his sensory/motor system, with my hands, something that is much more effective than would be speaking to him into the well-constructed logic of his left brain. The left brain is about planning and reflection, the right more directly concerned with sensing and postural adaptation. If you speak to the left brain, the person will conceive of an act and then try to do it. Inject will into posture, and you are left with a system that no longer adapts to changing conditions. What you are doing creates a static condition. Indications given with the hands appeal to the sensory-motor logic of the right brain – they go directly to the source, bypassing the censor the abides in the left brain, filing interpretations of sensory input into

categories, separating mind from body. The right brain doesn't do this. It deals with now--sensory input and motor output.

Primary control needs information to function

To ignore feeling would be to ignore the body, since sensory input can be stored anywhere throughout the motor cortex. Language involves motor concepts: we *grasp* an idea, a concept *follows* from another, etc. It is no exaggeration to state that we think with our bodies (Alexander said it a long time ago! "Thinking is a matter of muscle tension.").

Top-down processing

If an anorexic looks in a mirror, and perceives himself as heavy, is there anything wrong with his visual sense? I think not. The problem is not with the eye, nor with the visual cortex. The misperception has more to do with thinking than it does with feeling. Our sensory input comes to be dominated by past experience, and the expectation of what we should make of visual input. This is called top-down processing, the functioning of which is often demonstrated by examples of what happens when our brains fill in what we cannot see. For instance, if you look through a picket fence, and see a dog or person running by on the other side, your brain will assemble for you the picture of the whole runner. Is this a truly accurate picture? Probably not, but it is much more useful than would be the fragments of true visual perception. As I look out my window now at a spiraling exterior staircase, I know what it is because I have experience of it. If I were seeing it for the first time, I would have no idea what to make of it. My mind would perhaps formulate some kind of image based on my experience of spiral things, but I doubt that I would know what that thing was for, and I further doubt that, without walking around the thing – changing my angle of perception – I would really be able to see it in any coherent sense. Researchers write of what a child's first visual experience must be like – nonsensical patterns of light and shadow.

What I am getting at here is that the problem of self-perception is not aided by ignoring sensory input, by imagining that that kinesthesia is somehow wrong, and that the solution is to appeal to *thinking*, but, instead, I am suggesting that *thinking* is the problem, and that the solution to the problem is to pay attention to true sensory kinesthesia, in other words, to change the *idea*, rather than ignoring the *feeling*. Because most of us have successfully shut down perception to an alarming degree, retracting the body inwards, restricting the movement necessary for perception, for, as I stated before, the senses are comparators, and require movement for their functioning.

I am suggesting that changing habitual posture requires a *will to perceive*. This *will to perceive* is what we need to have when we attempt to expand our field of perception to include both the self and its environment. It is what we do when we direct, which is inhabiting our bodies to the tips of the fingers and toes, to the top of the head to allow the natural out-going nature of the body to be.