

Cell Psychology and Beyond
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The evolutionary transition from unicellular life forms to multicellular (communal) life forms represented an intellectually and technically profound high point in the creation of the biosphere. In the world of unicellular protozoa, each cell is an innately intelligent, independent being, adjusting its biology to its own perception of the environment. However, when cells join together to form multicellular “communities,” it required that the cells establish a complex social intercourse.

Within a community, individual cells can not behave independently, otherwise the community would cease to exist. By definition, the members of a community must follow a single “collective” voice. The “collective” voice controlling the community’s expression represents the sum of all of the perceptions of every cell in the group. Original cellular communities consisted of from tens to hundreds of cells. The evolutionary advantage to living in community soon led to organizations comprised of millions, billions or even trillions, of socially interactive single cells. In order to survive at such high densities, the amazing technologies evolved by the cells led to highly structured environments that would boggle the minds and imagination of human engineers. Within these environments, cell communities subdivide the workload among themselves, leading to the creation of hundreds of specialized cell types. The structural plans to create these interactive communities and differentiated cells are written into the genome of each cell within the community.

Though each individual cell is of microscopic dimensions, the size of multicellular communities may range from the barely visible to the monolithic in proportion . At our level of perspective, we do not observe individual cells but we do recognize the different structural forms cell communities acquire. We perceive these macroscopic structured communities as plants and animals, which includes ourselves among them. While you might consider yourself as a single entity, in truth you are the sum of a community of approximately 50 trillion single cells.

The effectiveness of such large communities is enhanced by the subdivision of labor among the component cells. Cytological specialization’s enable the cells to form the specific tissues and organs of the body. In larger organisms, only a small percent of the cells function in perceiving the community’s external environment. Groups of specialized “perception cells” form the tissues and organs of the nervous system. The function of the nervous system is to perceive the environment and coordinate the cellular community’s biological response to the impinging environmental stimuli. Multicellular organisms, like the cells they are comprised of, are genetically endowed with fundamental protein perception complexes that enable the organism to effectively survive in their environment [for review, see: *Insight into Cellular Consciousness*, by B. H. Lipton, Bridges (ISSSEEM journal), 2001 Vol. 12(1):5]. Genetically programmed perceptions are referred to as instincts. Similar to cells, organisms are also capable of interacting with the environment and creating new perceptual pathways. This process provides for learned behavior.

As one ascends the tree of evolution, moving from more primitive to more advanced multicellular organisms, there is a profound shift from the predominant use of genetically programmed perceptions (instinct) to the use of learned behavior. Primitive organisms primarily rely upon instincts for the greater proportion of their behavioral repertoire. In higher organisms, especially humans, brain evolution offers a great opportunity for creating a large database of learned perceptions, which reduces dependence upon instincts.

Humans are endowed with an abundance of genetically propagated vital instincts. Most of them are not evident to us, for they operate below our level of consciousness, providing for the function and maintenance of cells, tissues and organs. However, some basic instincts generate overt and observable behavior. For example, the suckling response of the neonate, or the retraction of a hand when a finger gets burned in a flame.

“Human beings are more dependent on learning for survival than other species. We have no instincts that automatically protect us and find us food and shelter, for example.” (Schultz and Lavenda, 1987) As important as instincts are to our survival, our learned perceptions are more important, especially in light of the fact that they can over-ride genetically programmed instincts. Since perceptions direct gene activity and engage behavior, the learned perceptions we acquire are instrumental in “controlling” the physiologic and behavioral character of our lives. The sum of our instincts and learned perceptions collectively form the subconscious mind, which in turn, is the source of the “collective” voice that our cell’s “agreed” to follow. Although we are endowed at conception with innate perceptions (instincts) we only begin to acquire learned perceptions at the time that our nervous systems become functional. Until recently, conventional thought held that the human brain was not functional until some time after birth, in that many of its structures are not fully differentiated (developed) until that time. However, this assumption has been invalidated by the pioneering work of Thomas Verny (1981) and David Chamberlain (1988), among others, who have revealed the vast sensory and learning capabilities expressed by the fetal nervous system.

The significance of this understanding is that perceptions experienced by the fetus would have a profound effect upon its physiology and development. Essentially, the perceptions experienced by the fetus are the same as those experienced by the mother. Fetal blood is in direct contact with the mother’s blood via the placenta. Blood is one of the most important components of the connective tissue, through it pass most of the organizing factors (e.g., hormones, growth factors, cytokines) that coordinate the function of the body’s systems. As the mother responds to her perceptions of the environment, her nervous system activates the release of behavior-coordinating signals into her bloodstream. These regulatory signals control the function, and even gene activity, of the tissues and organs needed by her to engage in the required behavioral response. For example, if a mother is under environmental stress, she will activate her adrenal system, a protection system that provides for fight or flight. These stress hormones released into the blood prepare the body to engage a protection response. In this process, blood vessels in the viscera constrict forcing blood to nourish the peripheral muscles and bones that provide protection. Fight-or-flight responses depend upon reflex behavior (hindbrain) rather than conscious reasoning (forebrain). To facilitate this process, the stress hormones constrict the forebrain’s blood vessels forcing more blood to go to the hind brain in support of reflex behavior functions. Constriction of blood vessels in the gut and forebrain during a stress response respectively repress growth and conscious reasoning (intelligence).

It is now recognized that, along with nutrients, stress signals and other coordinating factors in the mother’s blood cross the placenta and enter into the fetal system (Christensen 2000). Once these maternal regulatory signals enter the fetal blood stream, they affect the same target systems in the fetus as they did in the mother. The fetus simultaneously experiences what the mother is perceiving in regard to her environmental stimuli. In stressful environments, fetal blood preferentially flows to the muscles and hind brain, while shorting the flow to the viscera and the forebrain. The development of fetal tissues and organs is proportional to the amount of blood they receive. Consequently, a mother experiencing chronic stress will profoundly alter the development of her child’s physiologic systems that provide for growth and protection. The learned perceptions acquired by an individual begin to arise in utero and can be subdivided into two broad categories. One set of outward-directed learned perceptions “control” how we respond to environmental stimuli. Nature has created a mechanism to facilitate this early learning process. Upon encountering a novel environmental stimulus, the neonate is programmed to first observe

how the mother or father responds to the signal. Infants are particularly adept at interpreting parental facial characters in discriminating the positive or negative nature of a new stimulus. When an infant encounters new environmental features, it generally focuses first on the parent's expression in learning how to respond. Once the new environmental feature is recognized, it is coupled with an appropriate behavioral response. The coupled input (environmental stimulus) and output (behavioral response) program is stored in the subconscious as a learned perception. If the stimulus ever reappears, the "programmed" behavior encoded by the subconscious perception is immediately engaged. Behavior is based upon a simple stimulus-response mechanism. Outwardly-directed learned perceptions are created in response to everything from simple objects to complex social interactions. Collectively, these learned perceptions contribute to an individual's enculturation. Parental "programming" of a child's subconscious behavior enables that child to conform with the "collective" voice, or beliefs, of the community. In addition to the outward-directed perceptions, humans also acquire inward-directed perceptions which provide us with beliefs about our "self-identity." In order to know more about ourselves, we learn to see ourselves as others see us. If a parent provides a child with a positive or negative self image, that perception is recorded in the child's subconscious. The image acquired of self becomes the subconscious "collective" voice which shapes our physiology (e.g., health characteristics, weight) and behavior. Though every cell is innately intelligent, by communal agreement, it will give its allegiance to the collective voice, even if that voice engages in self destructive activities. For example, if a child is given a perception of itself that it can succeed, it will continuously strive to do just that. However, if the same child was provided with a belief that it was "not good enough," the body must conform to that perception, even by using self-sabotage if necessary, in order to thwart success. Human biology is so dependent upon learned perceptions, that it is not surprising evolution has provided us with a mechanism that encourages rapid learning. Brain activity and states of awareness can be measured electronically using electroencephalography (EEG). There are four fundamental states of awareness distinguished by the frequency of electromagnetic activity in the brain. The time that an individual spends in each of these EEG states is related to a patterned sequential expressed during child development (R. Laibow, 1999, Medical applications of neurofeedback, in Quantitative EEG and Neurofeedback; James R. Evans and Andrew Abarbanel, eds., San Diego, Academic Press).

Delta waves (0.5-4 Hz), the lowest level of activity, are primarily expressed between birth and two years of age. When a person is in delta, they are in an unconscious (sleep-like) state. Between two years and six years of age, the child begins to spend more of its time in a higher level of EEG activity characterized as theta (4-8 Hz). Theta activity is the state we experience upon just arising, when we are half asleep and half awake. Children are in this very imaginative state when they play, creating delicious pies made out of mud or gallant steeds from old brooms.

The child begins to preferentially express a still higher level of EEG activity called alpha waves around the age of six. Alpha (8-12 Hz) is associated with states of calm consciousness. At around 12 years, the child's EEG spectrum may express sustained periods of beta (12-35 Hz) waves, the highest level of brain activity characterized as "active or focused consciousness." The significance of this developmental spectrum is that an individual does not generally sustain active consciousness (alpha activity) until after five years of age. Before birth and through the first five years of life, the infant is primarily in delta and theta, which represents a hypnogogic state. In order to hypnotize an individual it is necessary to lower their brain function to these levels of activity. Consequently, the child is essentially in a hypnotic "trance" through the first five years of its life. During this time it is down-loading biology-controlling perceptions without even the benefit, or interference, of conscious discrimination. The potential of a child is "programmed" into its subconscious mind during this phase of development. Learned perceptions are "hard-wired" as synaptic pathways in the subconscious, which essentially represents what we recognize as the brain. Consciousness, which functionally expresses itself with the appearance of alpha waves at around six years of life, is associated with the most recent addition to the brain, the prefrontal

cortex. Human consciousness is characterized by an awareness of “self.” While most of our senses, such as eyes, ears and nose, observe the outer world, consciousness resembles a “sense” that observes the inner workings of its own cellular community. Consciousness feels the sensations and emotions generated by the body and has access to the stored data base comprising our perceptual library. To understand the difference between subconscious and consciousness, consider this instructive relationship: The subconscious mind represents the brain’s hard drive (ROM), and the conscious mind is the equivalent of the “desktop” (RAM). Like a hard disk, the subconscious can store an unimaginable quantity of perceptual data. It can be programmed to be “on line,” meaning that incoming signals go directly to the data base and are processed without the necessity of conscious intervention. By the time consciousness evolves to a functional state, most of the fundamental perceptions about life have been programmed into the hard drive. Consciousness can access this data base and open up for review a formerly learned perception, such as a behavioral script. This would be the same as opening up a document from the hard drive on to the desk top. In consciousness, we have the ability review the script and edit the program as we see fit, just as we do with open documents on our computers. However, the editing process in no way changes the original perception which is still hardwired in the subconscious. No amount of yelling or cajoling by the consciousness can change the subconscious program. For some reason we think there is an entity in the subconscious that listens and responds to our thoughts. In reality the subconscious is a cold, emotionless database of stored programs. Its function is strictly concerned with reading environmental signals and engaging the hard wired behavior programs, no questions asked, no judgements made.

Through sheer will power and intent, consciousness can attempt to over-ride a subconscious tape. Usually such efforts are met with varying degrees of resistance, since the cells are obligated to adhere to the subconscious program. In some cases the tensions between conscious will power and subconscious programs can result in serious neurological disorders. For example, consider the fate of Australian concert pianist David Helfgott whose story was presented in the film Shine. David was programmed by his father, a survivor of the holocaust, to not succeed, for success would make him vulnerable in that he would stand out from others. In spite of the relentlessness of his father’s programming, David was consciously aware that he was a world class pianist. In order to prove himself, Helfgott purposely chose one of the most difficult piano compositions, a piece by Rachmaninoff, to play in the national competition. As the film reveals, in the final stage of his amazing performance, a major conflict occurred between his conscious will to succeed and the subconscious program to fail. When he successfully played the last note he passed out, upon awakening he was irreparably insane. The fact that his conscious will power forced his body mechanism to violate the programmed “collective” voice led to a neurological melt down. The conflicts we generally experience in life are frequently related to our conscious efforts of trying to “force” changes upon our subconscious programming. However, through a variety of new energy psychology modalities (e.g., Psych-K, see www.psych-k.com) the content of subconscious beliefs can be assessed and using specific protocols, consciousness can facilitate a rapid “reprogramming” of limiting core beliefs.

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