

# Acting Hands: The Implications of Hand Gestures in the Somatic Emotional Process of Formative Psychology<sup>1</sup>

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## Abstract

A central concern in Formative Psychology is how to create a personal life out of nonvolitional prepersonal behavioral patterns. This first involves the recognition of the spontaneous somatic-emotional patterns of reaction to internal or external stimuli and then holding and deliberately mimicking these forms. By voluntarily applying muscular effort of gradual and distinct intensity, we take the inherited patterns and create personally modelled forms. The work with hand gestures plays a key role in this process. The particularly fine motor skill of the hands enables us, in measured steps, to form and differentiate pre-existing behavioral patterns in the whole body. The following article describes developmental, neurophysiological and psychological aspects of hand gestures and demonstrates their implications in the process of Formative Psychology.

## Keywords

Hand Gestures – Mimicking – Voluntary Muscular Forming – Formative Psychology

*“The gods gave man brains and hands and created him in their own image—they gave him a gift, an ability superior to animals—through which he is capable of acting not only within the limits of nature’s common laws, but also beyond their limits, so that.... he may create or might be able to create new worlds, new sequences and new order, therefore behaving like the gods.”*

— Giordano Bruno<sup>2</sup>

They appear as volatile, dreamlike shapes in the continuum of life: Hand gestures. They are part of a gestalt in dreams and in daytime actions. We can pay attention to, hold and begin to form them voluntarily<sup>3</sup> by mimicking. In this way, out of motile forms,<sup>4</sup> we choose to create increasingly more stable and repeatable structures.

## History of Hand Gestures

As mammals evolved into bipeds, arms and hands were released from their previous restriction as instruments of locomotion. An intense interaction between brain development and the development of hand-motor activities paved the way for the ability to plan and prepare complex motor sequences, which previously had been mostly reflexive and unconscious gestures.

The early history of mankind can be seen as a learning process in which the hands played a key role in the pacing of development. Brain research views human learning as an active, mostly unconscious and preverbal processing of perception and experience produced by muscular-motor activities (behavioral patterns). Hands play the role of pacemaker for these behavioral patterns.

Learning from a phylogenetic perspective could only take place through a close coupling of hand and brain development. The relationship between hand and brain is an interplay in which each is dependent upon the other.

In order to learn from an ontogenetic perspective, the human being must develop a relationship to his/her hands. In early childhood this takes place through moving, grabbing and sucking. Sucking is a form of contact between lips and hands. This, as well as observation of the hands, increases differentiated hand-mouth and hand-eye coordination.

In the beginning, the infant perceives the world through his eyes, independent of his grabbing hands or, conversely, through his hands independent of his vision. Neither means of perception is connected to the other yet. Later on in his development, the baby learns to steer his hand functions by using his vision. Motor movements can be checked for accuracy through visual feedback and corrected as needed.

In the early stages of motor development, the baby grabs with both hands (movement coupling) using the whole palm. The child then progresses from grabbing with the palms of the hands, to a “scissor” grip, and then to a “pincher” grip. The ability to grab is mastered earlier than the ability to release.

Only after a maturation of the sensory-motor system will both hands function separately to form a one-handed grip. This right/left hand separation allows a differentiated dialogue to emerge between right and left.

Right/left handedness is a result of a learning process, which differentiates the roles of the grabbing, tool-wielding hand from that of the holding, sensing hand. The handedness corresponds to the lateralization of the two brain halves and their different tasks. This also allows for a dialogue between them. This motoric dialogue is fundamental for individual learning potential, and it becomes the portal to a personal creation of reality. Through volitional effort, we are free to transcend nonvolitional repetition of the given, which allows us, voluntarily, to generate new motoric patterns and experiences.

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<sup>1</sup> The material in this article is a synthesis of Stanley Keleman seminars (1992 to date), psychotherapeutic and personal processes in Formative work, as well as experiences in Formative exercise classes.

<sup>2</sup> Giordano Bruno, In *Versuch über die menschliche Natur*. Serge Moscovici. p.170 Suhrkamp, 1990.

<sup>3</sup> A central concept in Formative Psychology, “voluntarily,” as in “voluntary muscular effort,” refers on the one hand to neuromuscular structures connecting the neocortex with skeletal musculature and on the other hand, to the two-way dialogue and mutual influence of muscular and cortical differentiation. A mutual dialogic function of how cortical structures allow muscular differentiation and muscular structures allow cortical differentiation.

<sup>4</sup> In Formative Psychology, the term “motile” refers to the four somatypes (rigid, dense, motile, and porous) derived from four tissue reactions to somatic stress.

## The Neurobiology of Hand Gestures

As touch organs, hands are equipped with a high density of receptors. They are the center for tactile perception of the self and the outside world.

With the use of highly refined fine motor activity, they become an active sensory organ. Hand movement and perception are intimately linked. The relationship between the brain and the hands builds a balanced, complex web of interdependence. It is interesting to note that in the cerebral cortex, we find a proportionally larger sensory-motor representation of the hands.

Additionally, the fine gradations of sensory-motor actions allow a subtle differentiation in the experience of emotional expression during the Formative stages. This is due to the fact that all sensory-motor information is in direct connection with feeling aspects in the limbic system.

As mentioned, in the infant, the hands are connected with one another through movement coupling. With sensory-motor maturation and the separation of connections between left and right in the cerebrum, hands gain independent functioning. This allows for the possibility of one-handed grabbing.

### *Mimicking*

In working with hand gestures, we use one of the basics of somatic-emotional learning: Imitation, or mimicking. Imitation is a basic way of embodying experiences. The body learns through mimicking. The role-play of mimicked gestures is a voluntary act of embodiment and the creation of personal experience.

From a neurophysiological perspective, the mimicking of gestures follows specific motor schemata,<sup>5</sup> which order and structure information from sub-processes in the brain. From a single gesture emerges a complete motor pattern. Procedural memory (long-term memory of skills and procedures) is implemented by means of imitation.

The experiences from mimicking hand gestures follow the principle of the unity of the senses, which uses movement or movement designs as its basis. The body is a synesthetic system, meaning the experience of one sense can be translated into and understood by the other senses. (Synesthesia is a technical term in physiology and psychology for the activation of one sense followed by the co-activation of another sense.) For example, kinesthetic experiences can cross over into tactile or visual experiences. Or the perception of colors can be accompanied by the perception of sounds.

Working with gestures through mental imagination activates the same neuromuscular mechanisms as do memories, feelings or active motor processes. Mental imagination activates neuromuscular patterns and neuromuscular patterns activate mental imagination.

### *Voluntary Muscular Forming*

In order to voluntarily perform skilled hand movements, humans must utilize old brain structures that developed earlier in evolution. These lower motoric centers (such as areas of motoric nuclei, brainstem and spinal tracts) originally produced reflex patterns, which can now be voluntarily modulated through muscular-motor (neocortical) exercising.

### *Practicing*

While practicing fine motor skills, all regions of the brain that serve as guidance and motor control are involved. These include the cerebral cortex, cerebellum and basal ganglia. All three brain regions are interconnected through numerous pathways.

Motor practicing is the repetition of a motor-muscular pattern. Learning how to organize an action pattern, so-called procedural learning, takes place primarily through repetition. The sensory-motor information gathered from the repetition of gestures is stored, for the short term, in the hippocampus. It is later transferred to the cortex for long-term storage. This transfer of information occurs mostly while sleeping. Recovery phases are necessary since the brain continues practicing during sleep.

When exercising the repetition of gestures, the manual skills learned from earlier steps become differentiated and transformed. This occurs over a lifetime. It is an acquisition and maintenance process in which experiences are dynamically stored in the central structures.

When we learn a new motor pattern, all of our attention is needed. In the beginning, the movements lack differentiation and are difficult to control. During this phase, the pre-frontal cortex is especially active carrying out the tasks of focusing attention, inhibiting reflex-like movements, planning new non-reflex like movements as well as evaluating the whole process.

With repetition, the increasingly differentiated muscular patterns become more and more automatic. This means that sub-cortical structures take over control and attention is available to take in other experiences.

<sup>5</sup> Theory of Motor Schemata. In *Funktionell isolierbare kognitive Subprozesse und schizophrene Störungen*. 18-26. Dissertation von Stephan Krieger; Giessen. 1999. [www.usabp.org](http://www.usabp.org)

## Philosophy/Psychology of Hand Gestures

The close connection between hand and brain development has enabled humans to manufacture tools. The hands themselves are tools that serve as examples for manufacturing tools.

The dialogue between hand and brain is the basis for the dialogue within oneself as well as for the dialogue with the environment.

In addition to their central purpose in self-organization, hand gestures have an important function in social communication. Hand gestures precede cognitive understanding and actually organize it as well. The acquisition of speech occurs through grasping the world. Hand gestures are the first means of verbal communication. The further development of hand gestures leads to sign language used by the hearing impaired. There is a remarkable equivalence between sign language and spoken language.

Even in the uterus, practicing hand gestures affects the muscular-emotional development process of the young organism. As an outward facing surface and most visible body wall, our hands can initiate somatic-emotional forming processes. The rest of the muscular motor body follows these processes.

By practicing hand gestures in the uterus, a fetus can have its first experience of an external object. The hands themselves can be perceived as an object outside of the fetus. This is also true for the adult. Using hand gestures enables us to observe ourselves from a distance, which is so meaningful in the process of self-organization.

During child development, autonomy of hand movements and the expressive strength of the hands are important requirements for the development of a strong sense of self, independent mobility and speech development. The hands, among other things, help the child to assemble a body scheme. They also help to develop a sense of self in the world and to develop the capability to express feelings and ideas in a differentiated manner. The first type of hand exploration is self-exploration (hand in the mouth, touching other body parts). The first object of examination is one's own body.

In adulthood, hand gestures provide central access to self-regulation. They also enable differentiation and transformation of existing action patterns as we shall see in the following stories.

### Hand Gesture Stories

In the next series of short case studies I will attempt to illustrate the above mentioned, theoretically based work with hand gestures within the framework of a Formative approach.

A female client with multiple traumas through sexual abuse keeps her organism in a constant state of alarm with twitchy and nervous hand movements. As she begins to observe these spontaneous events and is capable of slowing them down in very little steps, she becomes able to sense her general state of alarm. The practicing of the alarm patterns through hand gesture exercises sensitizes her to her somatically formed readiness to keep herself on constant alert in order to defend herself from a potential attack. Disorganizing the alarm pattern in steps allows her to experience a greater sense of safety within herself. It distances her from the compulsion of past memories.

A female client who has suffered from anorexia and bulimia for the past 20 years sits across from me while making tense, narrowing hand movements as if she was pushing something away from herself. The gestures are a part of her rigid narrowness that has kept her blocked in a state of indecision with her boyfriend for years. Fine motor stages of forming and unforming these gestures allow her to make the smallest steps towards a more shapeable expansion. Only continual practicing and internalizing of her somatic-emotional expansion patterns enables her to allow more intimacy in her love relationship. Eventually, she dares to live with and ultimately marry her boyfriend.

A constantly changing pattern of hand gestures are keeping a man with a long history of drug abuse from experiencing self-contact—a means of permanent escape. By slowing down the sequences of the gestures, he is able to identify an individual gesture and relate it to a general pattern. This helps him to make the first steps towards a more consistent relationship with himself.

A young woman forms firmness and cohesion in a rigid and stiff external shape as a way to manage her inner chaos. In her family she has experienced much random violence to her body and soul because her father was schizophrenic. Her report on current events and their uncertainties is characterized by reactions of self-assertion to secure her existence with hand gestures in the form of pistols. With the disorganization of these stiff weapon-like gestures, she gains more flexibility without being exposed to her fear of, or becoming lost in, her inner chaos. Through these stages of disorganization the client remembers her experiences of riding and reigning in her horse.

A female client with a deeply dependent structure tries very hard to practice hand gestures in somatic-emotional work during private and group settings. She does this to please her therapist. The gestures are mostly those of holding herself together. By repeating the whole motor pattern, structures become stabilized and their experiences internalized. With time, she recognizes these gestures as shaped forms of her own organization. This realization enables her to achieve more independence.

Gestures are visible expressions of a person's inner movement and can be accompanied by shame. However, because the hand gestures are events that take place far from the center of the body, a certain distance is established. For a young man with intense shame reactions, working with hand gestures makes it possible for self-movement visible from the outside.

A schizophrenic artist experiences his painting as a way to form a shell and as a way to center himself. A Formative exercise can be used to voluntarily mimic a gesture. For example, holding a pencil and drawing open up the experience of the generalization of a pattern that was previously associated with a specific act. Thus, step-by-step, the artist can extend his life expressions that had previously been compulsively narrowed. He is even capable of maintaining his boundaries outside of his artist's studio.

Voluntarily formed gestures with a tightly closed form (a fist) enable a patient with chronic paranoia to become familiar with his spastically stiff body wall and how he uses his body as a means of protection against outside threats. Experiencing the mobility of his stiffness through gradations of intensity of his fist allows changes in his perception of the threat. This helps him to influence the amount of threat through voices. For the client, this is a first experience of the possibility of shaping a mainly subcortical process. This initiates the growth of self-confidence. He is no longer completely at the mercy of foreign and unpredictable forces.

A client with a dense<sup>6</sup> structure suffers from chronically inflamed large intestines. She confronts unavoidably uncomfortable situations by making a pushing away gesture with inwardly flexed hands. This strong narrowness places her under additional pressure. By exploring a variation of this pushing towards the outside—a pushing with the back of her hands, she experiences a completely new strength in this expansive gesture which, in turn, becomes key to indirectly influencing her spastic colon.

A female client with an ectomorphic<sup>7</sup> constitution suffers every morning from panic attacks caused by dissociative episodes. Recognizing the large right-left differences in her organism, I lead her through hand gesture exercises: “One hand holds the other.” In this manner, she initiates a dialogue between her two body halves, which enables her to gradually bring the two separated halves closer together. This process of growing coherence enables her to limit her panic attacks.

### Hand Gestures are Part of the Formative Process

#### *The Five-Step Principal<sup>8</sup> of Formative Exercises with Hand Gestures*

1. A client begins his therapy session with hand gestures before using words to explain what he would like to convey. I address this volatile, unconscious motor action and ask him to observe and hold the pattern of this gesture. Immediately, a somatic-emotional dialogue starts within him and between us. This becomes the starting point of a conversation between his hands and the rest of his body as well as between his hands and his brain. The local pattern of the hands becomes connected with the whole embodied person as well as with his somatic emotional state.
2. With gradual intensification, the muscular pattern that presents itself spreads throughout the whole organism. This pattern is accompanied by corresponding body sensations, moods, feelings and mental associations. The pattern undergoes an increase in density, leading towards dramatization. While pausing and holding this form, the somatic-emotional experience becomes connected to the client's originally intended theme, which is now experienced as the physical embodiment of the subject he originally wished to address. Eventually, signs of fatigue call for a reduction in the high intensity of the voluntarily formed pattern.
3. Now the client begins to build lower intensity, step by step, led by the fine motor activity of the hands. Staying with the newly created intensity levels of the gesture pattern changes his relationship to the original theme that he was attempting to deal with.
4. Disorganization can be led, step by step, to a lesser or minimal level of intensity. This disorganization can even lead to the possible disappearance of the original reaction pattern. In other words, there is the possibility of more mobility in a relatively formless and directionless state. Maintaining a stable form, over time, opens a door for experiencing inner layers. These inner layers can be experienced as deep organismic movements. They are proprioceptive information: Pulsation, flowing and the experience of inner space.
5. Enriched by these experiences of a clearer relationship to one's self, a new impulse emerges. This impulse enables the client to take a direction, a form that enables him to act. We can now reach back to the old familiar patterns with varied intensity levels, or we can try out a new action pattern that appears to be more appropriate to the inner or outer situation.

The well-developed fine motor activity of the hands makes it possible to create finely adjusted steps and to be able to pause on a still unfamiliar intensity level of a pattern that is in the process of forming. The hands have a leading and pacing function in this process.

<sup>6</sup> “Dense” is one of the four somatypes of Formative Psychology.

<sup>7</sup> Ectomorphic, mesomorphic, endomorphic are three constitutional types derived from the three embryological layers. This theory refers to the constitutional theory of William Sheldon and is a component of Formative Psychology.

<sup>8</sup> In the five steps of the How Exercise of Formative practice, involuntary action patterns are formed with voluntary muscular effort.

*Practicing Gestures*

We have the following methodological options:

- Working with gestures allows one to carry out motor steps with minimal effort. The sensitivity to stimuli increases proportionally as somatic muscular effort diminishes. Sensory information in itself will not lead to learning; it must be integrated with a motor action.
- To take a spontaneous gesture as a part of a whole pattern: With voluntary forming we approach a deepening experience of what is present.
- To suggest a voluntarily initiated hand gesture as an expression of boundaries or strength or expansion, etc.: In this way, the therapist can guide the client to create a pattern that is not yet consciously or motorically familiar to him. The therapist may also be able to stimulate an experience of somatic-emotional-mental connections.

When we work with hand gestures in Formative practicing, we can encourage whole forming patterns by the use of mimicking. Thus, we open a dialogue from the periphery, the muscular body wall, with the center of the body. This dialogue is the basis of understanding by experiencing the principle of transforming grabbing into grasping. Chains of action also precede the development of verbal language from a phylogenetic as well as from an ontogenetic viewpoint.

Through intensification of a gesture, the developmentally conditioned autonomy of the hand motor activity will be removed. As a local pattern becomes generalized, it becomes possible to experience the whole pattern.

Practicing a motor pattern with the hands allows for sensory-motor differentiation and creates new neuromuscular structures. These new structures promote and influence non-practiced action patterns as well.

With practice, a voluntarily created action becomes involuntary. The sub-cortical structures have taken over the control. The appearance of involuntary hand gestures points to a completed learning process.

**Biography**

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