

WHEN THE BODY TAKES OVER

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'Thinking a movement is destroying the movement'.
(Merleau-Ponty, 1962, p.321)

'Movements of the body are developed almost without conscious effort, in most cases. There seems to be a sort of intelligence of the body: a new dance is learned without analysing the sequence of movements'.
(Barral, 1965, p.137)

Contemporary cognitive models of the brain can be useful in the analysis of dance improvisation. In an embodied approach, sensorimotor information deriving from bodily informational systems is changed into meaningful patterns by and within the body. Finally we have left Cartesian dualism behind: the body has made its big come-back and is reinserted in informational theories of self-organisation.

This paper focuses on the relationship between body, intentionality and choices. The main questions of this research maybe briefly stated as follows: (1) How does the dancer shape his movements? (2) What role plays the mind in improvisation practice? The phenomenology of Maurice Merleau-Ponty is used to describe how the body moves intentionally through space without the explicit use of the cogito.

In the first paragraph I describe how we monitor our movements in daily life via the use of body schema's and proprioception. Instead of consciously monitoring our own body, we depend on information channels that are subconscious and subpersonal by nature. In fact: thinking-through-our-movements is time consuming and, more importantly, quite ineffective. In the second paragraph I describe the relationship between movement and consciousness. Especially the distinction between consciously attending to the body and being marginally aware of the body, is relevant. In the third paragraph I focus on dance improvisation practice. In a dance improvisation the dancer is faced with an almost infinite number of choices. Improvisation means choice (Katie Duck, 1997). Several factors will affect this choice: the spatial configuration, the physical and emotional state of the dancer and a whole set of invisible options hidden at the surface of the performance space. I distinguish the following performance states: (1) the moving mind: movement choices derive from the mind, (2) the knowing body: movement choices derive from the flesh and (3) the lost body: no movement choices are being made. In this paper arguments are given in favour of the knowing body.

Phenomenology: proprioception, body schema and body image

Phenomenology establishes a relationship between the subject and the objective world through the body. Most of the time the bodily movements are restricted to daily actions: at other times unusual patterns of movements serve no longer the primary conservation of life but the movements transform into dance. In both cases the body meets the surrounding space in its ultimate desire to act upon the environment.

In understanding the relationship between movement and consciousness, the concepts 'body image' and 'body schema' will be useful. The body schema's (also called proprioception) contain all the information about the movement and position of body parts relative to each other. Proprioception functions mostly on an anonymous and subpersonal level. The body image however has an intentional status: 'it is either a conscious representation of the body or a set of beliefs about the body' (Gallagher, 1985, p.228).

Imagine the next situation: I am walking down the street, in my right hand I hold a shopping bag, in the left hand my mobile. When I cross the street I avoid a cyclist while I am saluting to an old friend. This all happens without me being consciously aware of it. While I am walking I do not have to attend to putting one foot in front of the other: I do not have to think through the action of reaching for my mobile. I am marginally aware that I am moving in certain ways, but it is not the centre of my attention. However, when I stumble and my whole body is about to fall, it is my attention together with the automatic response of protection which saves me from falling.

Neuropsychologists have examined what happens to patients who have no longer access to the subpersonal and unconscious monitoring of their body. These patients have an intact body image but a dysfunctional body schema. Jonathan Cole and Jacques Paillard (1995) describe deafferented patients who have lost the senses of joint position and touch. One of these patients is I.W. who has lost sensations of touch and muscular proprioception from the collarline down. I.W. uses his body image in a way to make up for his impairment in the body schemas. In other words: he has to think through all his movements. For example, if you ask a normal a normal subject to walk to the other side of the room, it is proprioception that guides the person through the room. I.W. however has to use his body image to arrive to the other side. His movements require continuous mental and visual concentration. He cannot daydream or even sneeze (=a disruption of his mental concentration) while he walks since he needs to fully concentrate on the act of walking. The limits to how much he can do in a day he describes as having to do with his own mental concentration, rather than the amount of physical effort required. It is a life of someone who has to think and rethink his movements continuously.

Action and consciousness of action: the importance of not being conscious

In many situations it is a great advantage of not being aware of the action. If a dancer had to be aware of his movements all the time, his movement language would become slow and less refined. Many research findings support this view. In a research of Jeannerod and Castiello (1991) subjects had to reach for an object as fast as possible. During the task, the researchers changed position and appearance of the object (it became bigger or smaller). The subjects did not only have to reach for the object but they also had to give a verbal signal when they became aware that the position or the appearance of the object had changed.

The experiment showed that subjects could only report the change after a long delay: the body had already adapted to the change before the subject became consciously aware of the change. Additional research has shown that in a voluntary movement the movement preparation starts 300 to 400 milliseconds prior to the awareness of the movement. This means that a person can initiate an action without being aware of it: consciousness follows the action.

In another experiment made by Mel Goodale and others (see Jeannerod, 2002) the subjects had to move their hand to a coming target (for example, some-one throws a ball at you). This is an automatic reaction. Two experimental conditions were created: in the first condition the subjects had to react immediately to the coming target, in the second condition the subjects had to wait 5 seconds (time enough for consciousness to interfere with the automatic reflex of the arm). The velocity and accuracy of the performed actions were measured. The results show that the kinematics and the accuracy of the movements are very different for the 2 conditions. In the delayed condition (the condition where automatic movements are overruled by consciousness) the speed of the movement is

slower and the accuracy is poorer. If subjects are conscious of their movements, it affects the velocity and accuracy of their movements in a negative way. The subjects lose the 'online control of their movements' (Jeannerod, 2002).

Attention and action

The central monitoring of an action, is a crucial characteristic of conscious movement. The following levels of motor representation can be distinguished (see also Jeannerod, 2002):

- (1) The most elementary level is the level of the automatic movements and reflexes. Automatic movements are used to make quick adjustments and corrections. In this case subjects remain completely unaware of the performed action.
- (2) The second level is the level where subjects are able to report on their actions. They can comment on effort and difficulty of the performed movement. This level also includes all the movements with a general, global sense of awareness. Subjects are however not able to report about specific details, like posture and position of the different body parts. I call this peripheral awareness.
- (3) The third level is the level where subjects are able to understand the what and why of their actions. Explicit cognitive decision making directs the movements.

Gallagher (2000) makes a difference between consciously attending to the body and being marginally aware of the body. Sometimes we are consciously aware of our body or parts of our body. Most of the times, however, our attention is directed away from our body toward the environment, the surrounding space, the other or some project we are undertaking.

When I am conscious of my bodily movement, I am aware of the pragmatic content of my actions, for example 'I am drinking my coffee' and not so much on the specific details of the motor action (pressure and force of the fingers, position of the hand etc.) 'I am aware of my bodily actions not as bodily action *per se*, but as action at the level of my intentional project' (Gallagher, 2000, p.4).

Dancers however are trained to be overtly aware of the position, weight, pressure, force and resistance of the various body parts. They are aware of the stretching and flexing of the muscles, rotating of the joints, the bending or unbending of the limbs and the maintenance of balance. In improvisation the dancer faces the difficult task to monitor the internal body and simultaneously direct the attention toward the environment.

Dance improvisation

I think the biggest difficulty in the kind of improvisation we practice is not consciously shaping your body, is actually letting your body fold and to develop a more reactive and a many timed body as opposed to a shaped body...I see that as an idealised form of dancing: just not knowing and letting the body dance you around. (William Forsythe, 1999, p.26)

In our daily movements as well as in dance practice we depend heavily on our body schemas. The dancer needs to trust his own body, especially the subconscious and pre-reflexive knowledge of the motor system. A continuously cognitive monitoring would be too rational and, because this information has to travel all the way to the "top", too slow. It is important to make a distinction between improvisation and choreography.

In a choreography the dancers learn the dance material: in this learning phase dancers start on a conscious level and in the process they more and more rely on proprioceptive information systems. This means: first the dancer thinks his movements through and step by step the body takes over.

Research suggests a 2-step process (Epstein, 1986; van Wieringen, 1986, 1988). In the first stage of learning, the dancer uses a higher, more attentionally demanding level of control involving planning, representation, and all manner of cognitive strategies. In the second stage of learning, the

well practised movement skills may well be controlled through the motor system without the involvement of any a priori planning. In the latter case cognitive representation and cortical monitoring play only a minor role in movement control (Abernethy & Sparrow, 1992). Skilled dancers are often ignorant of the precise details of action by which they perform a particular dance skill. As already mentioned before, this is often a blessing in disguise since consciousness can affect velocity and accuracy of a particular movement in a negative way (Newell, 1978).

Let's focus again on improvisation. In improvisation the dancer is not performing a fixed dance piece but he is improvising his movements. The dancer reacts on all the perceptual input and generates movements out of it. Alertness, a rapid reaction system and an attentional sensory system are crucial characteristics of the improviser. Nevertheless, an improviser can preplan his movements as well. Often a lot of cognitive processing is going on. The crucial moments of improvisation are however the moments that the mind is no longer thinking and planning its movements but when the body starts to move without the explicit use of a mental configuration or reference.

When you are when you don't know where you are is one of the most precious spots offered by improvisation. It is a place from which more directions are possible than anywhere else. I call this place the Gap. The more I improvise, the more I am convinced that it is through the medium of these gaps -this momentary suspension of reference point- that comes the unexpected and much sought after "original" material. It's original because its origin is the current moment and because it comes from outside our usual frame of reference. (Nancy Stark Smith, 1990, p.64)

The most beautiful and ideal improvisation is the dancing body which is present in time and in space, the body which can unfold itself in a clearly described manner. The body is conscious in its own way. The mind has no longer a fixed idea but the body has. It is a physical experience, starting from a movement and ending in a movement.

The body is extremely sensitive to the internal sensorimotor information as well as to his external senses. The cortical interference is reduced: the information doesn't have to travel all the way to the "top". The consciousness cannot deal with such an overload of information. But the body can. This is instant composition: the body is no longer shaping consciously its movement but is affecting time and space by momentary and instantaneously bodily actions.

For the sake of my next argument I would like to make another remark. A distinction needs to be made between the moment that the body takes over and the moment that the body gets lost in its own movements. In improvisation it happens regularly that dancers lose themselves in space and in time. The body moves on without any reference to time, space and goal. In fact, the body is going nowhere. Furthermore: it seems that the body is stuck in its own movements. The body has lost its presence in space and in time. It's there and it is not there at the same time. But when the body takes over, the body will follow its own physical logic thereby responding to whatever goes on at that moment. The body follows its own intrinsic logic, dealing with the tremendous amount of (somato-)sensory information on a proprioceptive level.

I claim that there is a big difference between the dancer who is lost in its movements and the dancer who's following its bodily logic. In both cases you could say that the body takes over. I would prefer not to do that. In the first case I would say that the body has no clue where it is going, where it is coming from and where it is at this particular moment. In the second case, I would say that the body definitely "knows" where it is coming from and where it is moving into. This knowing however is not a mental state, or a conscious state but it is a physical state in which the proprioception plays a crucial part. The higher level of cognitive control has been replaced by control on the level of the motor system. Especially in the case of rapid movements and extremely complex movements a-priori

cognitive planning is not always fruitful (Rose, 1996) since higher-order planning can affect the velocity and accuracy of these movements in a negative way.

And more importantly, when the body takes over it can still take in all the sensory information from the direct environment. When I am lost in my movements, I believe that my body is no longer capable of attuning properly to all the incoming sensory information. The body is locked up inside: it is no longer communicating with the outside world. A dancer as well as an observer can sense the difference. You can see/feel/sense when the dancer thinks his movements or when the dancer just moves and lets his body intuitively (re)act on the moment. However, you can also sense the difference between the dancer who is lost in his movements and the dancer who moves from a sharp and very present physical state. The mental awareness has become physical.

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