

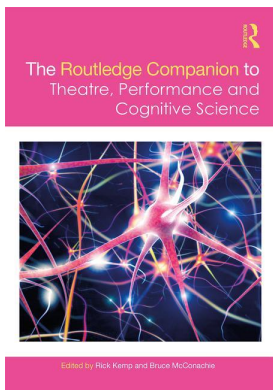
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9

ACTING AND EMOTION

Vladimir Mirodan

A few questions?

A friend, six months into an actor-training course, is working on a monologue requiring him to become 'enraged' and 'let rip.' His acting teacher is not satisfied. During one rehearsal, he gets hold of my young friend's arms and requests that he deliver his speech while fighting against the pressure. Muscles strain, blood rushes to the head and much shouting ensues. 'That's it, now you've got it!', the director beams. Our young actor, instantly becalmed, replies: 'Ah, I see... That's what you wanted. OK.' To which the director: 'Now I'm not so sure. How can you be so calm, so soon after? *Did you really feel it?*' The young actor is perturbed: what is he meant to 'feel'? Why should he not keep his cool? And what can the director possibly know about his intimate feelings?

Two hundred miles to the east, a well-known Hollywood star is filming in a Paris suburb. The script requires her to make a transatlantic telephone call, during which she hears that her relationship with her boyfriend is at an end, and then break into tears. The movie is set in the 80s, before the advent of mobile phones, so an old-fashioned public telephone had to be found. But the location scouts did not notice that the street where this rare period cabin is situated was under the flight path of planes landing at Charles de Gaulle airport. Eleven takes are needed before a decent sound track can be recorded. Our highly skilled actress manages to break down in tears 11 times in succession, always on the same exact word in the script. In the hotel bar that evening, the crew cannot help but ask themselves: how can someone appear so genuinely, visibly affected and yet control her emotions to such an extent?

I meet an acquaintance, a much-liked British actress in her 50s, and I tell her that I am writing something about emotion. 'Ah,' she says, 'you must write that actors possess a special ability to feel the emotions of others. I always know when I meet a true actor,' she adds, 'because of their special sensitivity.'

Such stories give rise to a number of posers, common to all actors: 'How do I achieve intense emotions? How do I repeat these night after night, take after take, on cue? Do I have to feel them for others to feel? Indeed, how is it that others respond emotionally to what I do? Is it because I have some unusual ability? Can anyone apart from me know what happens emotionally when I am acting?'

Contemporary cognitive neuroscience offers a set of competing explanations regarding the arousal, perception and transmission of emotion. I will outline the principal theories first, then look at the ways in which certain widely used acting approaches map themselves onto them, as well as at how such explanations – while still partial and uncertain – might begin to influence the development of acting practices.

What's an emotion?

Prevalent theories almost always begin by examining the relationship between the physical signs of emotion and their penetration into, and interpretation by, consciousness. The so-called 'read-out' theories (Damasio 1994, 1999, 2010; LeDoux 2002; Rolls 2005) use the term 'emotion' to describe physiological changes. Our bodies strive to maintain a balance between key internal functions and the environment – homeostasis. Physiologically considered, emotions are departures from homeostasis: under the impact of fear, rage or joy, our skin changes its electrical charge, our palms sweat, hearts race or are frozen in terror, the pituitary and adrenal glands adjust their outputs, certain peptide modulators are released into the bloodstream and the immune system undergoes rapid modifications. Some changes can also be observed with the naked eye: we blush or turn pale, our breathing rate increases, our facial muscles rearrange themselves in configurations typical of anger or disgust, our body postures indicate aggression or submission. Emotion thus refers to chemical and neural patterns, triggered automatically by innate brain mechanisms, without the intervention of consciousness. 'Read-out' perspectives on emotion would explain the experience of my young friend, the trainee-actor, in terms of his awareness of the rapid onset and equally rapid diminution of physiological arousal. Emotions are intense ('salient' in psychological terminology) and of relatively short duration. They are not to be confused with long-lasting 'moods,' such as exuberance or serenity. States of arousal with high salience focus the attention, dislodge other thoughts and take you over. As the psychologist Jerome Kagan (2007, 22) explains in a telling metaphor: 'There is always some form of weather, but we award special status to the infrequent, distinct arrangements of humidity, temperature, and wind velocity called hurricanes, blizzards, and thunderstorms.'

Neuroscientist Antonio Damasio's notion of 'background emotions' is also useful:

When we sense that a person is 'tense' or 'edgy', 'discouraged' or 'enthusiastic', 'down' or 'cheerful', without a single word having been spoken to translate any of those possible states, we are detecting background emotions. We detect background emotions by subtle details of body posture, speed and contour of movements, minimal changes in the amount and speed of eye movements, and in the degree of contraction of facial muscles. (1999, 52)

'Feeling,' on the other hand, is the 'private, mental experience of an emotion' (Damasio 1999, 42). Feelings occur when physiological changes penetrate into consciousness and are experienced as a recognition, a 'realisation' of the link between a stimulus and the body alterations this has provoked. Feelings involve evaluation: the bodymind has an inbuilt set of values enabling it to judge whether a stimulus is good or bad (Damasio 1999, 30). Such judgements depend in the first place on how familiar or strange the new event is, and then on how it measures against our sensory experiences – is it going to be pleasant or unpleasant? In psychological terminology, feelings have 'valence.' There are background feelings

just as there are background emotions: a background feeling ‘corresponds... to the body state prevailing *between* emotions. When we feel happiness, anger, or another emotion, the background feeling has been superseded by an emotional feeling’ (Damasio 1994, 150–1, italics original).

Crucially, from an acting perspective, the evaluative function of feeling is closely linked to action. Feelings rise in consciousness *after* we have reacted physically to a stimulus: ‘The feeling of fear came after you jumped and after your heart was already pumping – the feeling itself did not cause the jumping or pumping,’ writes the neuroscientist Joseph LeDoux (2002, 206). The scheme he proposes is therefore as follows: physiological change in the body > registered by the brain (emotion) > consequent action (fight or flight) > connections with memory of past, similar occurrences > feeling (registering the change in consciousness).

Our conscious consideration of the world, not least of other people, also generates images. The mind/brain develops structures enabling it to respond to these images automatically, non-consciously. Damasio calls these brain structures the ‘somatic markers’: ‘somatic’ because they are about the body (*soma* in Greek), ‘markers’ because they ‘mark,’ fixing into brain circuitry images arising, however fleetingly, in the mind. Somatic markers are ‘automated alarm signals’ (Damasio 1994, 173), important weapons in our defensive armoury which, by linking present events to the memory of past dangers, enable us to make life-saving choices in milliseconds, without the need for a laborious examination of possible courses of action. Emotions can therefore be triggered in the brain not only by an actual object or event, but also by ‘conjuring up from memory’ (Damasio 1999, 56) an image of that object or event.

Feeling is the construct that brings emotion to the mind; when feelings arise, we tell ourselves: ‘I am afraid’ or ‘I am excited.’ For ‘read-out’ theorists, the ability to think in words is therefore essential to the generation of feelings (Rolls 2005). The words we choose are influenced by the immediate context of the event, by our other thoughts and actions at the time and by our culture (Kagan 2007, 42). Are we watching *The Blair Witch Project* or are we actually lost in a dark wood? – the same state of arousal can be described as excitement, terror or impatience. Emotions are therefore context-dependent:

consider a woman who has just learned that her ninety-year-old mother, who had been suffering from a painful cancer for three years, died. If asked to describe her state she is likely to say ‘sad’ or ‘relieved’, depending on the most salient feeling, when her actual stage is a blend of both emotions.

(Kagan 2007, 8)

Two other contextual elements are important in shaping the emotion. First, the nature of the target towards which we direct it – is Romeo in love with Juliet or with Rosaline? Second, while reading or hearing about an event, the words activate perceptual representations rooted in our individual experiences: direct experience of parenthood will affect the emotions aroused by words such as ‘son,’ ‘daughter’ or ‘children.’ In the recall of emotion-laden events, our thoughts direct themselves towards the context in which these arose and in particular towards their presumed causes. We always ask ‘what led to this?’ These thoughts colour the unconscious sensations into becoming a specific feeling.

A competing, albeit minority, view on the nature of emotion (Izard 1991; Panksepp and Biven 2012) minimises the role played by consciousness and emphasises instead the operation of those strata of the brain which lie deep below the ‘thinking cap’ of the neo-cortex. Experiments have demonstrated that one can elicit avoidance or approach reactions in animals through the direct stimulation of their brains. Applying electrical or chemical

stimuli to the areas associated with fear, for example, will make even young animals, who had never been exposed to danger, cower, and if the stimulus is strong enough, scurry away in terror (Panksepp and Biven 2012, 20). Such reactions amount to coherent emotional responses and contradict those theories positing that systems in the neo-cortex 'read out' physiologically induced signals in order to transform emotion into feeling.

Neuroscientist Jaak Panksepp and his allies thus propose a view of consciousness that differs from the one outlined by Damasio, LeDoux and Rolls, yet chimes with certain common artistic discourses on imagination and creativity:

neither cognitive ability nor the ability to think in words is a necessary condition for affective consciousness. Felt experience can be *anoetic* – an unreflective, unthinking primary-process kind of consciousness that precedes our cognitive understanding of the world, or our so-called *noetic* (learning, knowledge-based) secondary-process consciousness... As we feel our affective states, we do not need to *know* what we are feeling.

(Panksepp and Biven 2012, 14, italics original)

Emotion is thus seen as a primary, sub-cortical response which – if it needs to be generated at will, as in acting – is best engendered by physical means that echo biological triggers for fear, anger, lust and so forth, encountered 'in the wild.' From *this* perspective, my young friend's drama school exercise would be explained as an attempt, however unsophisticated, to access this innate mechanism.

I can now hear the theatre-orientated reader who, having ploughed through the preceding pages, grumbles: 'This is all rather technical and distant, detached from what *it actually feels like* to be on stage or to watch a performance.'

The philosopher of cognitive science Giovanna Colombetti (2014) also vents her dissatisfaction with these scientific accounts of the emotions. In particular, she complains, 'affective neuroscience has so far neglected emotion *experience*' (2014, 143, my italics). Her analysis makes extensive use of data derived from the so-called 'third-party' methods – the technologies and methods scientists use to measure physiological changes related to emotion, including their sophisticated ways of looking 'inside' the brain. But – argue Colombetti and the phenomenological school within which her critique inscribes itself – in relying heavily on physical measurements, affective neuroscience has neglected first-hand, subjective reports of emotion. A different framework is therefore proposed: the so-called 'enactive' approach, integrating first- and third-party accounts and forcing scientists to 'focus not only on *what* [the subjects] experience but also on *how* they experience it' (Colombetti 2014, 147, italics original).

'Enactivism' is a synthesis of ideas drawn from cognitive science, biology and phenomenology (Varela et al. 1991). One of its central tenets is *embodiment*: the brain alone is not considered a sufficient physical basis for the mind. Rather, the mind is generated or 'enacted' by the entire living organism: not only its sensorimotor functions, but also the viscera and the circulatory, immune and endocrine systems. Another core assumption is that the mind operates on organisational principles common to all living organisms. Organisms, it is asserted, are defined by their drive 'to make sense' of the world and the concept 'mind' encompasses this drive. 'Enactivity' is the organism's capacity to 'make sense' of the world and of necessity adopt an attitude or perspective on it, and not necessarily in the form of articulated thought. As the philosopher biologist Evan Thompson (2007, 128) puts it: 'Mind is life-like and life is mind-like.'

By adopting this broad definition, enactivism readily incorporates conclusions on human emotion derived from animal observation (the ‘sub-cortical’ or ‘anoetic’ model described by Panksepp). Conversely, the ‘read-out’ model, with its several phases (see LeDoux’s scheme earlier), is considered uneconomical, over-complicated and ineffective. This is because this model assumes that the specific kind of emotion experienced depends on a series of cognitive appraisals of an event in terms of its significance for the organism’s survival and well-being. From a biological perspective, emotion generated by the entire organism, without the intervention of a complex system of appraisal checks, feels more in keeping with the way in which nature organises itself. The ‘evaluating activity... is realised entirely immanently, in virtue of the organism’s autonomous organisation,’ Colombetti writes (2014, 101). As an extension of this position, no meaningful distinction between cognition and emotion can be drawn: ‘The mind, as embodied, is intrinsically or constitutively affective; you cannot take affectivity away from it and still have a mind’ (Colombetti 2014, 1).

The generation and perception of emotions cannot therefore be ‘parsed’ into separate cortical and sub-cortical processes. The brain integrates ‘vertically’ and uses all its resources to generate cognitive/emotional responses. This perspective rejects the sequence first posited by William James and essentially adopted by Damasio, LeDoux and many others, who consider that a sensory stimulus is the trigger for the generation of emotion in the body/mind. If the body acts ‘as a whole,’ then the brain is already primed to act: ‘There is’, Colombetti writes, ‘no first cause in this process... Emotion is not a distinct step in a perception–action sequence...emotion is rather an inescapable, pervasive dimension of brain activity on which sensory information impinges and from which action progresses’ (2014, 63).

This holistic, all-encompassing perspective supports acting methodologies which seek to do away with any artificial separation between analytical (‘table-work’ – text analysis or ‘actioning,’ for example) and intuitive (e.g., ‘neutral/larval’ mask work or contact improvisation) approaches. I also find talk of an ‘immanent’ relationship between the body/mind and the environment seductive, humanising and capturing the sense we have of our lived experience. Nonetheless, this remains a mostly philosophical construct. Some (as yet modest) support is emerging from studies showing high levels of integration in brain functions, suggesting that emotion and cognition operate together in distributed networks (Gu et al. 2013; Hardcastle 1999, 242–3; Kassam et al. 2013, 1; Pessoa 2008). Colombetti’s preferred model for conceptualising emotions is therefore as ‘dynamical patterns’ – self-organising patterns of the organism, best described with the tools of dynamical systems theory (DST). DST maps mathematically the mutual interdependence of variables within a system or ‘state.’ When organisms react, their reactions are not ‘directed’ or ‘determined’ by a primary cause, but are shaped by the mutual interaction between all the factors involved. A telling example of such mutual interdependence is what occurs when two grandfather clocks are placed next to one another on the same wall. After a while, their pendulums synchronise, with the wall acting as a conduit, through vibrations. Neither clock can be said to ‘lead’ the other – they are both engaged in continuous, mutual adaptations.

As the descriptions detailed earlier will have made clear, the emotions – seen as aspects of cognitive activity – are being extensively examined from several perspectives: physiological–biological, experiential–psychological and expressive–social. However, there is as yet little consensus regarding their neural structures or the processes that give rise to them. Nowhere is this disagreement more in evidence than on the question of whether emotions may be classified in accordance to the ways in which they are expressed and communicated (through the face in particular) and whether inferences regarding their underlying neural mechanisms

may be drawn from these classifications. Two main approaches sum up this debate: the ‘basic’ versus ‘modal’ classifications.

Following widely quoted research by Paul Ekman (1982) and others, six ‘basic’ or ‘primary’ emotions are sometimes isolated: happiness, sadness, fear, anger, surprise and disgust. These are so defined because their facial expressions are universal, cutting across cultures and continents. The classical theory is that each of these is generated by an ‘affect programme’ (Tomkins 1962, 244), a brain structure developed through evolution and transmitted genetically. It has been very difficult, however, to observe in real life the distinct facial patterns Ekman assigns to each of the basic emotions. As a result, adherents of the affect programme conception of emotion tend of late to explain variability in real-life expressions as ‘blends’ of the basic emotions. Ekman has even suggested viewing the very notion of ‘affect program’ as a metaphor. Nonetheless, while acknowledging that affect programmes can be altered by culture or experience, Ekman (2003, 67) continues to postulate that ‘there must be different [brain] circuits for the different responses that characterise each emotion’; in other words, that emotions occur when the brain ‘executes a pre-written program’ in response to a stimulus.

This position, though still influential, is less secure than it was considered a couple of decades ago. An alternative theory – the componential emotion model – argues that emotions cannot be defined according to set configurations of the face but that, when we experience an emotion, face muscles move and rearrange themselves fluidly. The expression of emotion is therefore seen as a *process*, ‘during which different elements of the expression surface and combine at different points in time’ (Scherer and Ellgring 2007, 116). The inference is that emotions are not discrete entities, recognisable through set response patterns, but rather ‘fuzzy sets’ of cognitive activity, motor expression, physiological arousal, action tendencies and subjective feeling states. These components of emotion (hence ‘compositional’) are linked, or even synchronised, and their expressions *emerge* over time in a variety of psychophysical configurations.

This view of emotion gives some scientific support to the enactive theory. From the same perspective, the fraught question of which comes first – arousal, consciousness or action – is being replaced by an emphasis on the interactions between these different phases: while it is acknowledged that emotions are generated more or less automatically by a central mechanism, it is considered that this can be triggered by any one of these elements and, once triggered, reinforced and modified by the other two.

As far as performance is concerned, I expect there will be little dissent if from the descriptions earlier I pick out the intrinsic link between emotion and action. Emotional states that do not result in perceptible expression, however diminutive, are generally speaking of little use in the communication of meaning.

Emotion and acting

Three conclusions of significance to acting theory can be drawn from these descriptions:

- Cartesian distinctions between reason and feeling on the one hand, and between control and abandonment on the other, are comprehensively rejected
- Assumed hostilities between the conscious and the unconscious, in their various post-Freudian incarnations, are replaced by an understanding of the interdependence of neo-cortical (conscious) and sub-cortical (non-conscious) processes
- Great emphasis is placed upon the indivisibility and mutuality of emotional arousal and physical action.

Some widespread assumptions of Western schools of acting are, however, still rooted in the old distinctions. One entrenched belief is that convincing acting involves the creation of ‘genuine’ emotions, contrasted with the ‘technical’ imitation of their outward signs (Strasberg 1965). If the emotion is to be believable and affect the spectator, it is stated, the actor must experience it at least in some degree. This formulation needs to be rephrased in the light of scientific findings: neither spectators nor performers *can help* being ‘moved’ (changed) by emotion-generating actions. The amount of conscious control actors can exercise over the generation as well as the transmission of emotions, and the equivalent control spectators have over *their* emotional reactions, are tightly circumscribed by our biology. Emotional expression, like laughter, is outside our voluntary control and so is its detection.

But what is the most effective route to arousing it? Two principal approaches define Stanislavsky’s legacy in this area: one takes as its starting point a mental trigger, the other a physical trigger.

The first, perhaps best known among non-specialists, revolves around summoning ‘emotional memories.’ The theory underpinning it assumes that our experiences leave traces in the nervous system, and that memories get fixed in our brains by association with some of the sensations which accompanied their creation: ‘a polka-dot tie, an ivy leaf on a stucco wall, the smell or sound of sizzling bacon, a grease spot on the upholstery... [an] apparently insignificant object had been unconsciously perceived and associated with the original emotional experience’ is how Uta Hagen (1973, 48) describes it. These memories are not available to the conscious mind, but are triggered when we recollect details associated with the original experience. One of the early adopters of Stanislavski in the United States describes the procedure thus:

The theory is that if, quietly relaxed, you think back to a certain incident in your life which moved you strongly at the time, and if you can remember and recreate in your mind the physical circumstances of that moment (where you were, who was there, what happened, the time of day, the place, surroundings) and start reliving it... it is possible that a feeling similar to what you felt at that time will recur. If it was a very strong emotion and you can bring it back successfully three times in a row, it is quite possible you have something that will work for you for a long time.

(Lewis 1958, 35–6)

This technique implies a high degree of self-knowledge, and actors are often encouraged towards soul-searching. Introspection is sometimes mitigated by balancing emphases on turning reflection into action and on openness to the emotions of others, as in the teachings of Uta Hagen and Sanford Meisner, respectively. Yet the technique remains essentially static, enabling access to emotion by means of a mental process, with a minimum of physical activity. As has by now been comprehensively established, Stanislavsky’s notion of emotional memory was based on a partial and in places erroneous reading of the ideas of the French psychologist Théodule Ribot on the nature of memory (Benedetti 1988, 31–2; Carnicke 2009, 154ff.; Kemp 2012, 157). In American Method schools, this reading was then amplified by the introduction of significant Freudian practices – ‘quietly relaxed’ often meant lying down, as if on an analyst’s couch. But, as theatre scholars attentive to the messages of cognitive science point out, the assumptions underpinning emotional memory exercises are both confirmed and challenged by much that the former has to say about the nature of emotion.

Records of objects and events with which we have interacted are indeed stored ('co-registered') in memory in association with the motor activities (reaching, looking, tasting, etc.) and emotional reactions which formed part of our encounter with them. And while motor, affective and sensory storage occurs in different systems in the brain, retrieval is always holistic: we recall a landscape in association with the memory of the effort needed to reach it and the feeling of awe or surprise when we first saw it. 'As a consequence, when we recall an object... we recall not just sensory characteristics of an actual object but the past reactions of the organism to that object' (Damasio 1999, 161). Memory is indeed 'affective.'

It is, however, erroneous to speak simply of 'retrieving the image' of an object.

Cognitive approaches to memory distinguish between inactive 'long-term memory' and 'basic working' memory – the ability of the brain to hold on to images for periods from tenths of a second to a number of consecutive seconds (Damasio 1994, 197). Reactions to emotional stimuli are a dialogue between long-term and working memories, directed by purposeful attention. Associations are not only imbued with the sensations and emotions of the past, but are also shaped by the context in which they arise in the present; they are, Joseph LeDoux (2002, 203) explains, 'constructions assembled at the time of retrieval.' Thus, each 'construction' will be slightly different from past remembrances of the same event. An actor seeking to recall a personal emotion for the highly specialised purpose of transferring it to a fictional character in fictional circumstances does not therefore engage in the like-for-like retrieval of a past event, but in its imaginative reconstruction. This is also affected by what psychologists call 'mood dependence' – our mood today will influence the past we bring up (Connolly and Ralley 2007, 254).

There is a fair bet that the way in which the Hollywood actress I described earlier managed to burst into tears 'on cue' was in part through the use of emotional memory techniques. Yet neuronal and conscious memories are not identical. When our actress broke down in tears, her technique involved just as much being able to access 'triggers' from her past as being aware of the context and requirements of the present. What she did was an act of emotional *imagination*. Whatever the memories she summoned, they were no more 'real' than Michael Chekhov's famous improvisation when he reenacted his father's funeral to great effect, only to disclose at the end that his parents were still hale and hearty. This got him expelled (temporarily) from Stanislavski's classes, yet forced the master to reassess his demand for 'absolute truth' in the recreation of emotionally laden biographical events. From a cognitive perspective, emotional recall can only be a recreation, affected just as much by traces left in the brain by past events as by the emotional context in which the retrieval takes place and, above all, by its *current purpose* (see also Blair in McConachie and Hart 2006, 174).

What then of emotions generated as a result of physical exertion or the reproduction of facial arrangements and/or gestures commonly associated with certain affects, the so-called 'outside-in' process? It has frequently been observed that actors can become angry by repeatedly banging their fists on a table or distressed by imitating the outer actions of crying (Carnicke 2009, 187; Hagen and Frankel 1973, 50). Such observations are supported by scientific findings: the psychologist Ernst Gellhorn (1964) thought that emotions could be aroused and becalmed at will by the action of the muscles. Research indeed shows that emotions can be triggered when physical movement is accompanied by somatic sensory-feedback to the brain, consequent changes in neo-cortical circuits and autonomic nervous system (ANS) and hormonal changes (Panksepp and Biven 2012, 171). However, it also appears that a 'tipping point' needs to be reached in the size of the outer expression before this becomes effective. In a number of studies, participants reported that a film was funnier or the electrical shocks they received more painful when they exaggerated their amusement or pain than when

they kept their faces still (cited in Hatfield et al. 1994, 54). As we saw, Ekman demonstrated that the facial expressions corresponding to the six ‘basic emotions’ could be accurately and universally read. However, a study comparing Ekman’s static, laboratory-based experiments with reactions to facial expressions taken from several realistic films only found limited recognition of the emotions portrayed (Carroll and Russell 1997). It appears that, within certain limits (Wallbott and Scherer 1986, 697), exaggerating the facial expression corresponding to an emotion increases its intensity as well as the accuracy with which it is perceived.

Overall, in light of the discoveries of cognitive science, ancient quarrels between actors who work from the ‘inside-out’ and those who start with physical actions appear increasingly sterile. After all, Stanislavsky, Meyerhold, Laban and Copeau all emphasised the unbreakable circuit of psychology and physicality. Cognitive science confirms the idea of a continuous loop between stimulus, physiological reactions, non-conscious changes in the brain and consciousness. Where in this loop one starts is irrelevant, as emotion/feeling, once initiated, will surge and intensify involuntarily.

How is it, then, that actors are to a large extent able to control the physiological effects of emotional arousal? Here a further distinction needs to be drawn between the generation and transmission of emotions in real life and in a performance context. Whether as actors or spectators, we come to performance in a peculiar frame of mind. Actors direct their attention to elements in their material which provoke both conscious and non-conscious inferences regarding character, relationships and actions. Most, if not all, of these are emotionally charged. One might call this process ‘reading for emotion’ rather than ‘reading with emotion.’ The actor reads the text purposefully, with the goal of emotional engagement leading to physical representation constantly in mind. Working on a role involves a to-and-fro between the circumstances described by the script and the personal attitudes of the actors. This iterative process involves a controlled arousal of emotion: reading-with-a-purpose in preparation for acting, which is then refined and modified in the crucible of the rehearsal room.

Moreover, actors ‘read for emotion’ with trained eyes. The literary critic R.A. Zwaan (1993) has argued that the ways in which readers construct meanings reflect their *purpose* in engaging in reading and that, with repeated exposure to such purposeful reading, they develop special capacities. Reading for emotion will similarly include specialised forms of attention and concentration. In particular, I would argue, actors acquire highly developed abilities to disguise and modify emotional behaviours in accordance with the so-called social ‘display rules’: ‘conventions, norms and habits that... specify who can show what emotion to whom, and when’ (Ekman 1980, 87). Psychologist Nina Bull (1951/1968, 44–7) once carried out a series of experiments in which the subjects were asked to react while under hypnosis to emotionally laden words triggering fear, disgust, triumph, etc. Their physical responses amounted to preparation for action, but never to the action itself. In anger, for example, the ‘subjects would clutch their hands in readiness to strike, but they never actually struck at anything.’ Moreover, when questioned (while still under hypnosis), the subjects described being aware of the feeling of the emotion (e.g., the feeling of being angry), as well as, separately, of the physical sensations they were experiencing. The two were perceived as closely related, but the subjects ‘seemed always aware of a difference’ (Bull 1951/1968, 47). It appears that the mechanisms of control lie deep in our minds and that acting training exploits and enhances this universal trait.

Equally, repeated exposure to certain types of performance – whether classical verse plays, contemporary dance or action movies – conditions audiences’ aptitudes for specific emotional responses. Jerome Kagan cites an interesting experiment in this context: when monkeys are given a sweet drink, specific neurones connected with feelings react in their

brains. When the animals have had enough of the glucose solution, these circuits fall silent, but show up again when they are offered a different food. The implication is ‘that an individual, like the hungry monkey, must be psychologically or biologically prepared for an emotional state’ (Kagan 2007, 145).

Two further questions need addressing:

- How is emotion transmitted from actor to actor and from actors to audience in the course of performance?
- Do actors possess a special ‘gift’ which enables them to access and transmit emotion more than others?

The philosopher Robert Gordon wrote: ‘You can catch an emotion, just as you can catch a cold, without knowing who you caught it from’ (cited in McConachie 2008, 67). Psychologists Elaine Hatfield and John Cacioppo (1994) promoted the notion that our social interactions are characterised by pervasive forms of transmission and reception of emotion they describe as ‘primitive emotional contagion.’ It has been long known that mimicry of posture, gesture and in particular of facial expressions is a salient feature in our interactions. We react to the pitch, rhythm, speed and length of pauses in others’ speech and are attuned to the ways they stand as well as to their gait and hand gestures. Such observations are so routine, so much part of our daily interactions, that they become automated. That is, they take place with great speed and with minimal demands on consciousness (Hatfield et al. 1994, 12).

Automatic contagion through mimicry frees our brains from having to assess consciously the emotions of our interlocutors. We are thus able to focus on what they are saying or on our own tasks. Nonetheless, even when in awareness we pay attention to concrete facts and actions, subliminally we are still affected, moment by moment, by the feedback from changes in our muscles and ANS induced by mimicry (Hatfield et al. 1994, 48).

When we watch a performance, complex conditioned responses to its codified language come into play – certain gestures, facial expressions or vocal qualities affect spectators, who have deliberately placed themselves in a state of receptivity. But this codified language is itself based on everyday facial expressions, sounds, and so forth, which register non-consciously, as part of our primitive contagion mechanism. The discovery of mirror neurones in macaque monkeys (and their presumed existence in humans) has led to an understanding of imitation not as a process of conceptual reasoning, but as direct simulation, the actual experience of others’ emotions and actions (Gallese et al. 2004). Strong evidence is also emerging of emotion and sensation mirroring through bodily functions other than those of the brain (Uithol and Gallese 2015 for a review). This has led the neuroscientist Vittorio Gallese (2003, 2007; Gallese and Sinigaglia 2011) to introduce the concepts of ‘embodied simulation’ and ‘intercorporeality’ to account for interactions between subjects which cannot be assigned to the classical ‘mind-reading’ cognitive model. ‘By this,’ Uithol and Gallese write, ‘it is implied that mindreading is preceded, both from a phylogenetic and ontogenetic point of view, by non-propositional forms of social understanding’ (2015, 11). ‘We know through the body – kinetic consciousness,’ writes philosopher Maxine Sheets-Johnstone (2009, 383). Intuited through the experience of acting, this type of direct experience was memorably described by the Stanislavsky-influenced literary critic Francis Fergusson as the ‘histrionic sensibility,’ a state in which the actor ‘responds mimetically with his whole being’ (1955, 24).

Are our reactions in direct proportion to the emotions observed in others? Psychologist Kenneth Craig (1968) designed a classic series of experiments to test this question. His

conclusions and other experimental evidence suggest that we feel others' distress, but at lower levels than our own, directly experienced pain (Hygge and Ohman 1976).

Further qualifications pertain when applying discoveries based on daily life experiments to the specialised context of performance. It is true that, as a matter of biological efficiency (the brain does not like to waste resources), emotional responses follow the same neuronal pathways in reaction to real life as to fictional stimuli. What the necessary control mechanism might be has been the subject of much speculation. I find of particular interest the view that, in fictional contexts, *beliefs* play a role far greater than in daily life in modifying emotion-contingent actions. In responding to fictional stimuli, the brain receives two complementary sets of messages: one (probably sub-cortical) from the 'reality' experienced, the other (cortical) from our pre-formed understanding of its fictional nature. As a consequence, emotional reactions are attenuated: 'one's belief that certain events are only being played by actors has a very modest impact upon one's feelings, but this belief is quite enough to keep one seated during a convincingly depicted murder' (Schroeder and Matheson in Nichols 2006, 33).

If spectators (receivers) engage emotionally, albeit at attenuated levels, are there people (transmitters) who are more successful than others at generating emotional contagion? And are such people better at it because they are themselves capable of higher levels of arousal or, on the contrary, because they keep a cool head while signalling arousal?

Elaine Hatfield (1994, 128) recognises that there are both powerful 'spreaders' of the emotional virus (the 'Typhoid Marys') and people who are particularly vulnerable to contagion, the 'Marcel Prousts' of this world. In terms of both physical and psychological characteristics, some people display greater natural abilities to express emotions; in psychological terminology, there are 'dispositional differences' between stronger and weaker senders. There thus appears to exist a sub-set of the population with particular abilities in this area. So-called 'externalisers' show emotions in their faces, but have low-level ANS responses. A different sub-set, 'internalisers,' have strong ANS responses, but few, if any, outer manifestations (Hatfield et al. 1994, 133). One can reasonably conjecture that performers, not least actors, are generally drawn from within the first group. Few studies have been carried out to test this hypothesis, but one study (Stern and Lewis 1968) concluded that actors practised in the systematic use of emotional memory were able to increase their galvanic skin responses more than control groups.

The experimental director and critic Charles Marowitz once wrote that an actor's utter absorption when repeating words, moves and gestures during rehearsals leads to 'a mild form of self-hypnosis' (1978, 100), thus reducing interfering conscious thoughts and opening up the ability to react spontaneously. A recent study (Panero et al. 2015) looked at whether acting students were more hypnotisable than control groups of musicians and non-artists. The conclusion of the study was that they were, as a result of their greater openness to imaginative suggestibility, proneness to fantasy and acquired skill in focusing their attention in order to become absorbed. In general, people who are inclined towards (and practiced at) 'reading' both others' and their own emotional responses, who display a natural propensity towards mimicry and who are generally 'emotionally reactive,' are probably more vulnerable to emotional contagion (Hatfield et al. 1994, 148–9). Again, one recognises here some commonly encountered descriptions of the kind of person who enters and thrives in the acting profession.

Acting on emotion

Thus far, much of the writing on acting and cognitive science – Blair (2008), Lutterbie (2011) and Kemp (2012) – has been framed by debates around certain core practices of the American

conservatoire. Strasberg is the main target at which all the writers take aim, concerned that his approach downplays the roles of the imagination and of physicality as well as setting up confusing notions of what 'real' emotions are. Blair, for example, draws on LeDoux to reconsider how affective memory works and to call for a reassessment of the way in which this is taught and used (Blair 2008, 81). Overall, a return to original Stanislavskian sources, as opposed to American developments, is favoured. Blair declares original Stanislavsky writings 'more valid' because their descriptions of acting processes are being confirmed by cognitive research. Kemp also finds in physical action 'a certain prescience of the current understanding of the emotions...' (Kemp 2012, 163). Indeed, the term 'prescient' is a *leit-motif* in Kemp's book and is applied equally to Diderot, Stanislavski, Meyerhold, Grotowski and Lecoq, with the latter brought strongly into focus.

To correct what they see as the dominance of an introvert, psychologising tradition, these writers adduce Stanislavskian physical action, Grotowski's extensions of Stanislavski's ideas, as well as explicitly body-based approaches such as Laban's and Lecoq's, in support of their calls for psychophysical integration. Acting approaches which start with the reproduction of physical outcomes of emotion and rely on these to generate emotions proprioceptively are extolled, in opposition to passive emotional memory. Kemp, for example, cites approvingly Grotowski's use of songs and sonic vibrations as an approach to arousing emotions by physical means. Blair finds in Damasio's scheme strong support for classical 'outside-in' approaches – Meyerhold and physical action – as points of departure for the creation of emotionally charged 'images,' rooted in the body. A methodology is thereafter proposed whereby reactions to texts and given circumstances lead to the creation of a stream of 'images' and thence to a 'detailed kinesthetic score that supports the body-mapping of those images' (Blair 2008, 81). In this context, most writers also cite Ekman's studies showing that one can trigger a basic emotion by arranging one's face muscles. At the same time, any simplistic notion that emotions may be engendered mechanically, by physical means alone, is rejected. Reshaping of the body, such as by means of animal, element or object work, can be an important contributor, but has to be done in dialogue with the internalised awareness of the psychological attributes of the emotion being sought and with a conscious, purposeful intent to generate it. Kemp (2012, 188ff.) describes a series of interesting exercises based on the eyes: students are taught to isolate what are normally involuntary movements and recognise how certain directions and frequencies link to different basic emotions. At the same time, Kemp recognises that, while feelings 'arise without conscious bidding,' they do so 'through a combination of physical actions and empathetic responses to a fiction' (Kemp 2012, 149, my emphasis). In other words, firing our histrionic sensibility necessitates both a physical approach and the deliberate, systematic mental engagement with how we *imagine* the emotion. This holistic approach accords with cognitive science principles, and its purpose in training is to sensitise the actor to the interaction between the physiological aspects of emotion and the primary metaphors with which we access them mentally (see also Kemp 2016).

While it is recognised that the science remains fluid and undetermined, a few acting methodologies have sought to adapt experimental findings directly. These approaches distinguish themselves from traditional acting methodologies by explicitly and deliberately using as their starting points *quantifiable* physiological elements, as opposed to traditional, psycho-analytical, qualitative methods (see also Blair 2008, 47).

In the 1970s, Susannah Bloch (1993; Bloch et al. 1987) developed 'ALBA Emoting,' an early process informed by scientific principles. Bloch's students were taught to control their breathing rhythms as well as arrange their facial features and postures into patterns corresponding to certain emotions frequently encountered in performance. This enabled them to

generate emotions with relative accuracy, sustain them over longer periods and rapidly reduce their effects when the context no longer required them. The approach was a pioneering endeavour, started at a time when cognitive science was still in its infancy. Its teaching continues sporadically and has recently been incorporated into the curriculum of a UK conservatoire (Jackson 2017, 82). However, the ALBA technique has been criticised on the grounds of a certain lack of rigour in its experimental methodologies and resultant data and because some of its assumptions do not reflect current scientific findings (Kemp 2012, 186–187).

A lesser-known technique is that developed by the German director Stephan Perdekamp. Known as the Perdekamp Emotional Method (PEM), this combines certain cognitive scientific principles with less secure psychological concepts, such as ‘bio-energy.’ Like ALBA Emoting, PEM strays from the scientific cannon in, for example, extending the list of recognised ‘basic’ emotions to include grief and happiness. While one can see how these may be useful in acting exercises, from a scientific perspective their inclusion appears somewhat permissive. Both approaches are also open to the criticism that their basic design assumes that one can generate specific emotions by replicating their physiological signs in isolation, regardless of the context in which these emotions occur. These include character as well as actor personality traits, the circumstances imposed by the narrative or the immediate context of the rehearsal room/studio.

Overall, methodologies based on the rigorous application of cognitive principles are still to establish themselves widely in actor training, but the field is ripe for development.

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