

NINE MODERN CONTEXTS FOR THE ALEXANDER TECHNIQUE

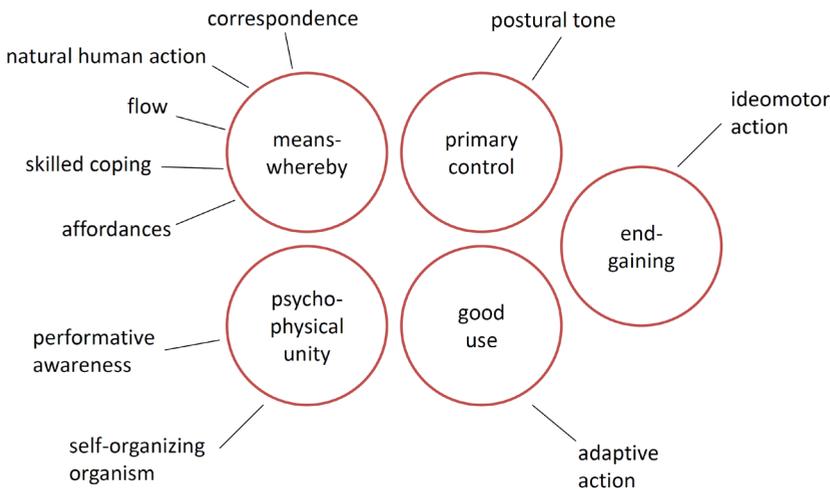
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Introduction

Can other disciplines help contextualize the Alexander Technique? I suggest that fields as diverse as philosophy, neuroscience, psychology and anthropology have much to offer. The aim of this article is therefore to explore various areas of recent research which I think overlap with some of the understandings of the Alexander Technique.

Below is a diagram illustrating a number of the key concepts I'll be discussing, showing how they relate to various operating principles of the Alexander Technique.



1. Ezequiel Morsella's 'adaptive action'

I begin with the neuroscientist Ezequiel Morsella and his theory of consciousness¹. I suggest that this theory helps to contextualize both the Alexandrian notions of 'good use' and 'end-gaining', and offers an explanation for the indirect nature of Alexander's procedures.

Morsella contends that consciousness evolved to allow cross-talk between potentially conflicting response systems such that adaptive behaviour can emerge. As an example, we can imagine carrying a scorching plate to the dinner table. One might say that the inclination to drop the dish arises from the 'tissue-damage system', and the inclination to continue carrying it arises from the 'food-intake system'. Consciousness, in this situation, plays its role by suppressing reflexive pain withdrawal in order to allow the adaptive action of bringing food to the table.

In Morsella's model, consciousness is only required for the resolution of conflict between systems competing for control of our one skeletomotor system. As such, there are many complex physiological processes which remain unconscious, such as the pupillary reflex or the peristaltic movement of the gut. Morsella identifies nine basic response systems², but recognizes the existence of many higher order responses such as the expression of emotions or parental care.

The idea that consciousness facilitates adaptive action resonates with the Alexander Technique. Nobel-prize winner Nicholas Tinbergen certainly thought so, and suggested that Alexandrian good use was 'a special case of life processes that ensure fitness, adaptedness, the ability to do the right thing at the right time and in the right place' and that misuse was 'maladapted functioning'³. But how might Morsella's notion of response systems relate to the Alexander Technique? As already stated, Morsella argues that consciousness exists to resolve conflict between response systems vying for control of our one skeletomotor system. If he is right, then the elements of Alexander's 'conscious control' would also be part of this negotiation process.

As it happens, Morsella draws our attention to one human response system which is different to all the rest. This system is ideomotor in nature – that is, driven solely by 'end-state mental representations' such as a door opened, a button pressed or a field traversed. Since these representations are built on a lifetime of successfully completed actions, ideomotor actions are always based on what is known, or habitual, and they therefore take no account of the ongoing context of a movement. The parallel with Alexandrian end-gaining is striking.

Morsella maintains that ideomotor action is the only system which is directly controllable by humans. This means that, for example, one need only think of a door opened, or a button pressed for the action to take place – or, in William James' famous phrase, 'we think the act and it is done; and that is all that introspection tells us of the matter'⁴. Furthermore (and again suggestive of end-gaining), Morsella maintains that our direct access to this system makes it dominant and potentially harmful. As such, other human response systems – for example, the tissue-damage system – are often trying to 'rein in' the potentially harmful ends brought about through ideomotor action.

In Morsella's view, systems other than ideomotor action are only indirectly controlled by us. This means that, for example, a basic response such as hunger can be activated by imagining a tasty dish, or an emotional response such as anger can be summoned by recalling an argument. I suggest that the Alexander Technique fits in here because it too relies on indirect procedures to influence action. Arguably, the Alexander Technique therefore involves the conscious inhibition of dominant ideomotor behaviour in order to allow scope for other indirect responses to more strongly influence skeletal muscle, and so inform behaviour adaptively.

Morsella presents a metaphor to illustrate his theory of competing responses leading to adaptive action. He calls it a PRISM, which stands for Parallel Responses into Skeletal Muscle. On the next page is therefore a proposed PRISM for the Alexander Technique.

As can be seen, I suggest that the 'means whereby' and the 'primary control' could constitute two separate human response systems. I would like to emphasize that I accept Alexander's prin-

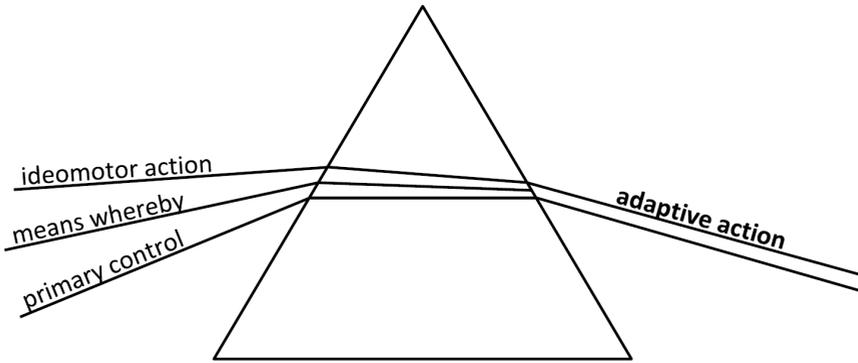


Fig. 1: A PRISM for the Alexander Technique

ciple that directing the primary control brings about the best possible means whereby an action can be carried out. However, the concepts are also dissociable. On the one hand, it is possible to direct the primary control without any ostensible movement towards a goal (while lying down, for example). Conversely, the adaptive value of process-attentive movement is recognized across many disciplines without an understanding of how to direct the Alexandrian primary control.

Ideomotor accounts of human action (with their reliance on mental representations) tend to be branded ‘cognitivist’, while the Alexandrian approach to movement (with its concern for a unified self responding in the here and now) has affinity with what are known as ‘ecological’ approaches. Bernard Hommel, one of today’s most well-known ideomotor theorists, sums up the current scientific willingness to look beyond this dichotomy when he states that

cognitivistic approaches tend to emphasize knowledge-dependent off-line processes while ecological and situated approaches emphasize environmentally driven online processes ... [B]oth need to be integrated to allow for action to be goal-directed and context-sensitive at the same time⁵.

Having briefly outlined how ideomotor action might be aligned with end-gaining, I will now introduce five understandings of movement from a variety of disciplines which are process-oriented and context-sensitive, and which I believe therefore resonate strongly with the Alexandrian means-whereby. These are, in turn, ‘affordances’, ‘skilled coping’, ‘flow’, ‘natural human action’ and ‘correspondence’. In contrast to the way the ideomotor principle gives the human subject direct control over their actions, these ways of acting are only open to our indirect influence. This places them neatly within Morsella’s framework, and is a further reason for claiming their affinity with the means-whereby.

2. James Gibson’s ‘affordances’

Ideomotor and other cognitive approaches to movement tend to view organisms as computers where information is processed by the brain in a linear fashion, with action the final ‘output’. A simplified version entails: sensory input – perception – decision-making – programming – efferent output. The central nervous system controls the action from start to finish, and memories of past perceptions and actions play a crucial role.

Modern ecological perspectives on action are radically different. The brain and memory are seen as having a limited role, with action instead arising out of the way organisms and their

environments can self-organize. The principle of self-organization – where diverse components will spontaneously form ordered patterns without any one component being in charge – is seen throughout the natural world, such as in the homeostatic self-maintenance of cells, the synchronized flashing of fireflies or the coordinated movements of flocks of birds.

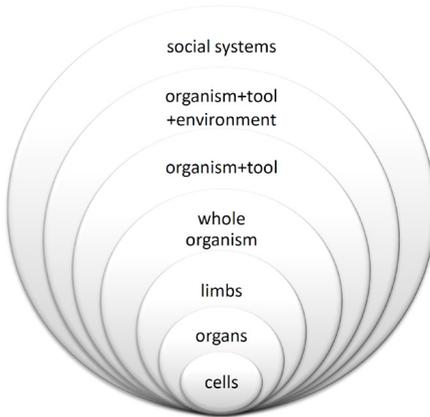


Fig. 2: A nested hierarchy of self-organising systems in humans (based on Kaufer, S. and Chemero, A. (2015) p216).

Modern ecological approaches understand animal movement in terms of a nested hierarchy of self-organizing systems, with each system exhibiting greater sophistication than the components it encompasses. For humans, levels of self-organization include cells, organs, limbs, the whole organism, the organism-plus-tool system, the organism-plus-tool-plus-environment system and so on, to include social systems as well⁶.

William Edwards describes how, under this view of human action,

External constraints (organismic, environmental, and task-specific) interact with the muscular-skeletal system which in turn organizes itself into appropriate patterns of coordination among its component parts in order to most effectively meet movement goals within the limits of its state space, available degrees of freedom, and inherent guiding principles⁷. Over time, the movement system is capable of reorganizing itself even further into collectives of synergies that are increasingly capable of effectively adapting to external demands constraining the system. Further, the guiding principles directing these processes of self-organisation are attracted to (i.e. directed towards) patterns maximizing the stability and movement effectiveness of the system⁸.

Cognitive approaches and ecological approaches have opposing views on the nature of perception and action. For cognitivists, perception is indirect because sensory data must first be interpreted by the brain, leading to decision-making and then the recollection of ‘motor programs’ in order to execute action. Ecological theorists maintain that, in many situations, such processes would be too slow⁹. Instead, it is claimed, organisms perceive the world directly such that perception and action inform each other reciprocally, without any cognitive interference or any one causal origin.

Evidence of direct action-perception coupling abounds in animals. In humans, for example, it has been shown that although we may be able to estimate and report on the size, distance, height or future landing place of a ball, such mental calculations are not involved in running to catch

it. Instead, the environment itself provides enough information to guide action – in this case, a feature of the light available at the eye known as *tau* (the ratio of an object's size to its rate of optical expansion on the retina) is enough to guide catching behaviour¹⁰.

In the 1970s, James Gibson gave the term 'affordances' to these directly-perceived possibilities for action, and noted that they depend on the ecological niche of the organism. As such, a wooden chair affords sitting to a human, but would also afford perching to a bird, or burrowing and ingesting to a woodworm.

Although affordances are real, they have a curious ontological status because they are relational in nature; that is, they are dependent on both the abilities of the organism and the environment it finds itself in. From the subject's point of view, perceiving and acting on affordances is therefore very different to perceiving and acting within a cognitive framework. Acting in an ideomotor or cognitive fashion means perception is indirect but that access to the control of action is direct ('we think the act and it is done', as described in the last section). Responding to affordances is the opposite: perception of opportunities to act may be direct, but control is indirect because the action depends as much on the environment as it does the organism.

Acting in this mode therefore requires that the subject relinquishes full control and enters into a 'mutualist' relationship with the 'invitations to act' offered up by the environment. Ecological psychologists are hence anti-representationalists when it comes to understanding the origins of action: as Rob Withagen and colleagues put it, 'intentions should not be understood as mental states that are insulated from the agent's body and the environment, and cause an animal to move ... the animal–environment relation is the proper unit of analysis in understanding agency'¹¹.

3. Hubert Dreyfus' 'skilled coping'

What does it feel like to sense affordances or the means-whereby? Another way in to understanding this is through an entirely different discipline: first-person, or phenomenological philosophy. In recent years, researchers have begun to bring insights from phenomenology into ecological psychology. Though the terms of reference are very different, the similarities with affordances are striking.

Over his career, the American philosopher Hubert Dreyfus has developed an account of being and acting in the world from the phenomenological perspective. He draws on a rich tradition of phenomenologists such as Heidegger and Merleau-Ponty, and his stance is summed up in a recent chapter 'The myth of the pervasiveness of the mental'. This chapter forms the lead contribution of a book devoted to the so-called McDowell-Dreyfus debate in which various authors dispute 'the extent to which conceptual rationality is involved in our skilful embodied rapport with the world'¹².

Dreyfus does not deny that a 'mental' or 'distanced' way of relating to the world exists. Rather, for him and the existential phenomenologists, this way of relating to the world is secondary to a 'primordial nonconceptual mode of coping' where we are merged with a 'world of attractions and repulsions'. In this mode of acting,

I don't need a mental representation of my goal. Rather, acting is experienced as a steady flow of skilful activity in response to one's sense of the situation. Part of that experience is a sense that when one's situation deviates from some optimal body environment relationship, one's activity takes one closer to that optimum and thereby relieves the 'tension' of the deviation. One does not need to know, nor can one normally express, what that optimum is. One's body is simply solicited by the situation to get into equilibrium with it¹⁴.

This way of acting is seen by Dreyfus as the hallmark of skill or mastery, whereas the distance created by the 'mind/world dichotomy' of cognitive approaches he views as undermining expertise.

This is illustrated by his example of playing tennis:

To get the phenomenon in focus, consider a tennis swing. If one is a beginner or is off one's form one might find oneself making an effort to keep one's eye on the ball, keep the racket perpendicular to the court, hit the ball squarely, etc. But if one is expert at the game, things are going well, and one is absorbed in the game, what one experiences is more like one's arm going up and its being drawn to the appropriate position, the racket forming the optimal angle with the court – an angle one need not even be aware of – all this so as to complete the gestalt made up of the court, one's running opponent, and the oncoming ball. One feels that one's comportment was caused by the perceived conditions in such a way as to reduce a sense of deviation from some satisfactory gestalt. But that final gestalt need not be represented in one's mind. Indeed, it is not something one could represent. One only senses when one is getting closer or further away from the optimum¹⁵.

Dreyfus' descriptions of the experience of movement clearly challenge the kind of cognitive accounts put forward by ideomotor theories, and his focus on process resonates with Alexander's concept of the means-whereby. And like the accounts of action put forward by ecological theorists, the implication is that skilled action can only be controlled indirectly. Dreyfus' writing has an immediate (some might say seductive) appeal; however, whether he has captured the complexity of authentic expert experience is contested, for example in a recent analysis of the performing lives of professional string quartet musicians¹⁶.

4. Mihaly Csikszentmihalyi's 'flow'

A third area of research relevant to the means-whereby is 'flow', an enormously popular concept embraced by the positive psychology movement of the last decade or so. Flow was coined by the Hungarian psychologist Mihaly Csikszentmihalyi (chik-sent-me-hi-ee) in the 1970s, and was described by him then as 'the holistic sensation that people feel when they act with total involvement'¹⁷. More recently, he has also described it as 'a harmonious experience where mind and body are working together effortlessly, leaving the person feeling that something special has just occurred'¹⁸. The connection with the Alexandrian means-whereby and psychophysical unity are clear. Flow has been studied over the years across a huge variety of contexts, and flow-like experiences have been recorded by populations ranging from sports people and musicians to office workers, chess players, Japanese motorcycle gangs and exotic dancers¹⁹.

Flow is a multidimensional concept, consisting of eight or nine interrelated components. From the perspective of the Alexander Technique, I suggest that it has four key characteristics which relate to the means-whereby. These characteristics are summarized below, with some examples taken from a sports context:

- Action-awareness merging ('When you feel at one with the movements you are making, you are experiencing ... the merging of action and awareness. ... Rowers explain that the oar becomes an extension of the arm; basketball players feel literally merged with or part of the team. ... Still other athletes mention the sensations of floating and flowing, of things feeling easy. A sense of lightness and ease of movement is often mentioned, as the athletes experience changed perceptions of effort and their physical body in space. ... The unified consciousness brought about by the merging of action and awareness is perhaps the most telling aspect of the flow experience.²⁰)
- Unambiguous feedback ('The type of feedback athletes can tune into can come from many different sources. First, and probably most important, is the feedback the body itself provides, particularly in the form of kinaesthetic awareness or knowledge of where it is in space. ... Feedback can also be external to the performer. ... [The] automatic response to what is happening around

one occurs when the feedback is coming clearly and immediately, as it does in a flow state.²²¹)

- Loss of self-consciousness ('This dimension is closely aligned with the merging of action and awareness – not worrying about oneself frees the self to become totally involved in the activity.²²² 'Somehow the right thing is done without you ever thinking about it or doing anything at all. ...It just happens. And yet you're more concentrated'²²³)

- *Autotelic* experience ('The word *autotelic* is derived from two Greek words that describe doing something for its own sake (auto = self; telos = goal) ... denoting something that is intrinsically rewarding.²²⁴).

The aspects highlighted above bear much resemblance both with the means-whereby and the characteristics of affordances already explained – in particular, direct perception, action-perception coupling, and nested self-organized systems made up of the human organism, the environment, tools and other humans.

In addition, the lack of self-consciousness associated with flow echoes the altered locus of control asserted by the ecological theorists – where control of action is distributed across an animal-environment system, rather than originating inside the head of a thinking subject as asserted by the cognitivists. In a recent interview, Csikszentmihalyi refers to research which proposes a neurological basis to this phenomenon:

So far, the studies that have been done on flow and the brain are few, but they suggest that what is happening is 'transient hypo-frontality' – the frontal part of the brain is not interfering with the rest of the brain. The frontal part is usually the one you use to make choices, evaluate options, think about consequences and so forth. That's the executive part of the brain. What you are using instead are the older parts of the brain, which store patterns of behaviour, for instance if you're a skier, the whole set of notions involved in going down the slope, the movements and sequences, they're all stored in the lower part of the brain. Usually, the lower part of the brain is being controlled or directed by the frontal part of the brain, but in flow, you get to be so good at practicing that if you have this information well practiced, then you can let it go freely²²⁵.

According to the researchers to whom Csikszentmihalyi refers, the frontal and lower parts of the brain alluded to above house the explicit and implicit information-processing systems, with action controlled by the latter summed up in the phrase 'I don't know how to do it, but my body does'²²⁶. As with affordance-based action and skilled coping, control of action under the flow state is therefore necessarily indirect. Csikszentmihalyi is clear on this feature, stating that: 'It is not possible to make flow happen at will ... and attempting to do so will only make the state more elusive. However, removing obstacles and providing facilitating conditions will increase its occurrence.'²²⁷

Finally, as with Hubert Dreyfus' skilled coping, a close relationship between flow states and expert performance is usually asserted. However, it is unclear whether flow leads to improved performance, or whether a good performance makes flow experiences more probable. In certain circumstances, it may be the case that flow is actually not conducive to optimal performance at all. For example, as Engeser and Schiepe-Tiska have recently remarked, 'Perhaps, in a marathon race, it is necessary for the self to be a vivid "dictator," forcing the body to run, and flow would hinder this.'²²⁸ Similar debates can be had in the Alexander world, where end-gaining can achieve impressive results at the expense of good use and the means-whereby.

5. Brian Bruya's 'natural human action'

Brian Bruya is Professor of Philosophy at Eastern Michigan University, and in 2010 edited a collection of essays entitled *Effortless Attention*, in which authors explored issues surrounding

Csikszentmihalyi's concept of flow²⁹. More recently, Bruya has taken the implications of flow research much further, and made a case for flow being an example of natural human action³⁰. This of course is an enticing idea for anyone familiar with the Alexander Technique.

The argument for natural human action goes as follows. Since Aristotle, the Western philosophical tradition has tended to create a strict division between movement in the human and natural realms, such that the idea of 'natural human action' would present a paradox. It is a world view in which atomism prevails. On the one hand, natural objects are seen as discrete entities which bang into each other as a result of necessity and chance. On the other hand, humans are also seen as irreducibly singular or 'monadic' selves, but who nevertheless initiate actions and can be held responsible for those actions. In this tradition, human action is linked to both a sense of agency (volition, purpose, intention etc), and a sense of self.

However, under the flow state, the triadic relationship between action, agency and self breaks down due to the disappearance of both the sense of effort and self-consciousness. As Bruya remarks, flow gives us

a kind of behaviour that involves skill, that is conscious, and that is performed at a high level, and yet it lacks any sense of volition or effort, and even lacks a clear subjective sense of an individuated self. In other words, the normal sense of a phenomenal self as the seat of action has blinked out³¹.

The common experience of flow thus presents a problem for the cognitive view of action, which dictates that movement is governed by a monadic, self-conscious agent. According to this conventional view, Bruya concludes, if a tennis player were to win a match in a flow state she would not own the action, and we would have to deny her the trophy. This is clearly preposterous.

The solution is to view flow as a type of action which is dependent on the more fundamental self-organizing movements which occur throughout the natural world. In putting forward this view, Bruya aligns himself with the ecological perspective on action described in the section on affordances above. Flow occurs where the simple, monadic self is relinquished to reveal a complex, plural self whose elements 'act through mutual cooperation as a unified entity, without a sense of a single directing force, internally or externally'³². This, according to Bruya, is what constitutes natural human action.

6. Tim Ingold's 'correspondence'

In his deep investigations of skill, Tim Ingold has many similar concerns to the writers mentioned above, such as the cycle of perception and action, or the synergy of practitioner, tool and material. Ingold, however, writes from an anthropological perspective. One early example is his description of the making of the string bag – or bilum – by the Telefol people of central New Guinea:

[The] accomplished bilum-maker does not experience the movements of her body as being of a mechanical nature. Far from answering to commands issued from a higher source, they carry their own intentionality, unfolding in a continual dialogue with the material. Telefol people liken this movement to the flowing water of a river. Thus the body-in-use is not moved, like a rigid object, but rather becomes one with the flow.

... It seems, then, that progress from clumsiness to dexterity in the craft of bilum-making is brought about not by way of an internalisation of rules and representations, but through the gradual attunement of movement and perception. As in any craft, the skilled maker who has a feel for what she is doing is one whose movement is continually and subtly responsive to the modulations of her relation with the material³³.

The opposition between mental representations controlling movement and the ‘attunement of movement and perception’ is very reminiscent of the earlier discourse on affordances. More recently, Ingold has referred to this attunement process as correspondence. Unlike interaction – where ‘the interacting parties are closed to each other’ and the connection is ‘inherently detemporalizing’ – correspondence involves ‘movement and becoming’ in which ‘sentience and materials twine round one another’ until they become ‘indistinguishable’³⁴.

Similar to Brian Bruya’s natural human action, Ingold characterizes correspondence as a kind of ‘action without agency’. He argues this kind of action belongs to a ‘middle voice’ present in classical Greek and a number of other non-Indo-European languages, but which has historically disappeared from English and other modern European languages. To act in the middle voice is neither an active doing, nor a passive undergoing, but rather what Ingold terms an active undergoing. In his words,

I have this feeling that whatever we’re doing in any kind of skilled practice we are both completely prepared and yet totally unprepared ... A conventional cognitive science account is that Mastery leads and Submission follows. The Mastery is a mental Mastery, you have your mental plan and your body then acts it out. You have cognitive Mastery that then dictates the actions of the submissive body. So, the mind ‘does’ and the body ‘undergoes’, and it’s a sort of passive undergoing. That’s the conventional view. I want to put that the other way round, to reverse the temporal priority of Mastery and Submission and suggest that in any kind of skilled practice – whether it’s going for a walk, playing the cello, or whatever – Submission leads and Mastery follows. ... I think it is a kind of action without agency... Instead of saying that whenever you’ve got action it must be the effect of some agency, you say that we’ve got Action. You don’t have to put an agency in front of it, because in an undergoing which is active, the doer, in a sense, remains inside the process of his or her doing³⁵.

As with the other concepts discussed in relation to the means-whereby, it is clear that correspondence cannot be actively willed; that it is therefore an indirect response. Unlike what has been discussed before, however, Ingold also believes that acting in the middle voice – acting without agency – is the essence of human creativity. To describe creativity in these terms is actually more common than might be supposed, as this recent radio broadcast of a conversation between a furniture-maker, fashion designer and orchestral conductor demonstrates:

Peter Korn: Getting the pencil out is a challenging moment, because you don’t know what’s going to happen. It’s a very open-ended moment. You don’t know if you’re going to succeed or fail at coming up with something that’s going to be pleasing. Or, a better way to say it would be you don’t know how long it’s going to take until you stumble upon – or the pencil stumbles upon – the right thing.

Katherine Hooker: But you see it happening. Rather than making it happen, I find that you see it presenting itself. And then you’re away, then like, ok, yes this is good.

Itay Talgam: There’s a moment, if I may say, of ignorance. That you actually give up your control and just succumb to something that...

Peter Korn: ...It’s directed ignorance meaning that if you draw a lot, then you get

to a place where you can remove yourself and the pencil will do the thinking, but there's that informed basis where you draw a lot and you're bringing something to it.

Itay Talgam: Absolutely, that has to be there³⁶.

7. Victor Gurfinkel's postural tone

Having explored five modern contexts for the means-whereby, I now turn to postural tone as the closest match in the current scientific literature for Alexander's primary control. As a starting point, I take the primary control to mean the 'relativity' in the use of the parts of the body (particularly the head, neck and back) such that body segments are maintained in an expansive relationship with each other regardless of the activity engaged in³⁷. Peter Ribeaux has recently gone further, arguing that the primary control comprises a whole body anti-gravity muscular support system involving the head, neck, back, pelvis, legs, feet, arms and hands³⁸.

Mirroring this latter conception of the primary control, Victor Gurfinkel defines postural tone as 'the steady contraction of muscles that are necessary to hold different parts of the skeleton in proper relation to the various and constantly changing attitudes and postures of the body'³⁹. Gurfinkel is a world expert on postural tone, and was a former student of the Russian physiologist Nikolai Bernstein (1896-1966) who is arguably the progenitor of the modern ecological approach to motor control and learning.

Aside from involving continuous low-level activity, postural tone must also be modulated dynamically. As one part of the body is moved, other parts are disturbed, creating disequilibrium. Therefore, for coordinated action to take place, postural muscles must resist, yield and assist in precise ways both to allow movement and to maintain equilibrium⁴⁰. Currently, however, there is still very little understanding of how postural tone is actually generated or controlled:

In the most recent reviews on this topic ... we find involvement of the stretch reflex (considering the role of Ia and II afferents), positive reaction of the support, vestibular, and tonic neck reflexes, crossed extensor reflexes, role of vision, reference frames, anticipatory mechanisms, body scheme, contact with the support, role of spinal, and supraspinal structures, neuromodulators, and many other factors contributing to the distribution of postural tone. But how does this all result in an appropriate posture? Although the muscle mechanics such as twitch, and fused and unfused tetanus have been well-characterized after more than a century of research, how these mechanisms are used to drive postural tone are not clearly understood. Instead, we typically see only schemes, diagrams, or models which attempt to integrate them⁴¹.

What is clear, however, is that there is emerging evidence from Tim Cacciatore and colleagues in support of the human ability to consciously nurture overall postural tone⁴². Moreover – and fitting well with Morsella's thesis of direct and indirect control of response systems – the manner in which postural tone can be influenced is likely to be indirect, separate as it is from the system of direct voluntary control explained by ideomotor or other cognitive theories⁴³.

8. Dorothee Legrand's 'performative awareness'

I have now described five modern understandings of movement which resonate with the means-whereby, and one which resonates with the primary control. In the final two sections, I am aiming for a wider perspective. To begin, therefore, what kind of consciousness might be required to access the means-whereby and the primary control? What might be the conduit for the application of these two Alexandrian principles?

To set the scene, I would draw attention to the way cognitive accounts of movement and attention have dominated sports in recent years, arguably affecting the way athletes train. In traditional instructional settings, coaches have relied on drilling preconceived idealizations of movement patterns and correct techniques. This is in contrast to ecological theorists who argue that the key to learning is to become more finely attuned to affordances in real contexts:

To the [ecological] theorists, the best way of instructing someone is not to say ‘do this’ but to guide the learner toward perceiving the affordances for themselves. This is almost analogous to what learning psychologists call guided discovery⁴⁴.

Part of the cognitive bias in sports has been to maintain a binary definition of attention as either internal or external⁴⁵. An internal focus of attention (for example on the hand) is supposed to impair performance because it disrupts automaticity in movement – commonly called ‘analysis paralysis’ or ‘the yips’. On the other hand, adopting an external focus of attention on the action effect (for example, a racket hitting a ball) is supposed to encourage the automaticity favoured by the cognitive view, where movements are controlled by highly efficient motor programs without conscious monitoring. However, some sports scientists have more recently become uneasy about

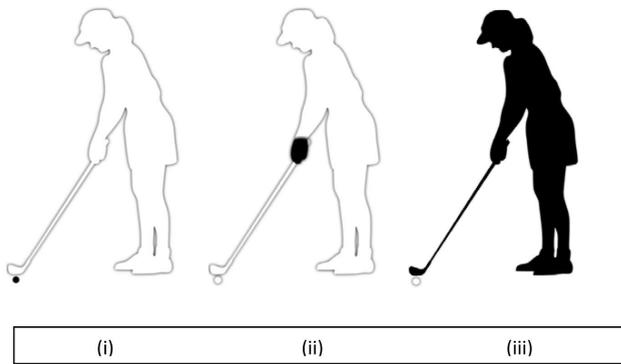


Fig. 3: Three types of bodily awareness (based on Legrand (2007)): (i) the invisible body, (ii) the opaque body, and (iii) the performative body.

the idea that athletes do not or should not be conscious of themselves in action. For example, John Toner and Aidan Moran have recently stated that, ‘In downplaying the practical value of bodily consciousness, we are concerned that researchers have ignored the deliberate, and indeed conscious, manner in which expert performers actively seek to improve their current performance level’⁴⁶. Or more starkly, the ‘unexamined body would simply not be worth moving’⁴⁷.

A first response to this problem is to recognize the important difference between performance and learning⁴⁸. An external focus of attention may work well in performance, but in learning, practising or honing a skill, other kinds of attention (such as an internal focus of attention) may be used which can temporarily (and purposefully) disrupt performance.

A second more profound response is to question whether there are only two ways of paying attention in movement. In the research literature, there has been little recognition of the kind of awareness which might accompany, for example, the kind of movements described in this article so far. This includes the self-organizing organism in direct relationship with its environment characterized by affordances, and which is similar to the psycho-physical unity of a self attending to the means-whereby described by Alexander.

One exception to the prevailing view is Dorothee Legrand who, in an important paper entitled

‘Pre-reflective self-consciousness: on being bodily in the world’⁴⁹, opens up a third realm of attention available to consciousness for the perception of affordances.

The first kind of awareness Legrand explores (the ‘invisible body’) corresponds to an external focus of attention where a cognitive approach means that the goal of an action becomes all-consuming such that the body itself seems to ‘disappear’. I have mentioned earlier in this article, and explored elsewhere in depth, how this is arguably brought about by an end-gaining mentality underpinned by predictive ideomotor processes⁵⁰.

The second kind of awareness Legrand explores (the ‘opaque body’) involves an internal focus which turns the body and its parts into objects. Legrand links this awareness to the concept of the ‘body image’, characterized as a collection of perceptions, attitudes and beliefs about the body. In this second mode of experience, one shines a spotlight on body parts such that they appear clearly differentiated from their surroundings.

The third kind of awareness (the ‘performative body’) arises out of the body schema, which can be understood as a holistic, volumetric map of the body which constantly tracks body parts in relation to each other and the environment⁵¹. Although essential for all motor activity, it is often assumed that the body schema remains either unconscious or at best marginal to awareness, working in the background in order that we can enact our intentions in the world. Legrand disagrees, however, and maintains that the body schema generates a type of consciousness which is particularly developed in dancers and other movement experts. This kind of awareness is pre-reflective, does not objectify the body, and is concerned instead with the whole self in relation to the world.

Despite its pre-reflective nature, Legrand argues that the performative body can nevertheless be brought to ‘the front’ of one’s experience without turning it into ‘a mere intentional object’⁵². This in turn raises the possibility that the body schema itself can be consciously fine-tuned or enhanced.

With the body schema’s capacity to incorporate external objects such as tools into its map, it has the potential to explain the kinds of perception involved in the ecological approaches I have explained earlier: both for the self-organizing organism in contact with its environment, as well as for organism-plus-tool systems. Moreover, it is known that postural tone relies in part on the body schema. Hence, the body schema is a possible conduit for the application of both Alexander’s means-whereby and primary control.

9. Iain McGilchrist’s ‘attention’

In this final section, I would like to make a plea for the widest possible perspective in understanding the Alexander Technique. In my approach to both the practice and research of the Technique, I have been influenced by the insights of the psychiatrist and neuroscience and literary scholar Iain McGilchrist. His work on hemisphere difference and the brain I have explored elsewhere in relation to the Alexander Technique⁵³, but suffice it to say that wide, vigilant, right hemisphere attention is undoubtedly highly relevant.

A glance at the main subheadings of McGilchrist’s extraordinary chapter, ‘What do the two hemispheres ‘do’?’ confirms the relevance of right hemisphere attention to the Alexander Technique. Where two concepts are included, the former refers to the right hemisphere, and the latter to the left hemisphere:

- Breadth and flexibility versus focus and grasp;
- The new versus the known;
- Possibility versus predictability;
- Integration versus division;
- The hierarchy of attention [the primacy of right hemisphere wide attention over left hemisphere narrow attention];
- The whole versus the part;
- Context versus abstraction;

- Individuals versus categories;
- The personal versus the impersonal;
- The living versus the non-living;
- Empathy and theory of mind [both right hemisphere dependent];
- Emotional receptivity [right hemisphere dominant];
- Emotional expressivity [right hemisphere dominant];
- Reason versus rationality;
- The twin bodies [only the right parietal lobe has a whole body image: ‘a living image, intimately linked to activity in the world – an essentially affective experience’];
- Music and time [understanding music and the flow of time are both largely right hemisphere phenomena];
- Depth [right hemisphere];
- Certainty [left hemisphere];
- Self-awareness [right hemisphere];
- Moral sense [right hemisphere]⁵⁴.

More than this, however, in just three short passages, McGilchrist is able to demonstrate the huge significance for our lives of the quality of attention we pay; what might be lost in the quest for scientific objectivity; and finally, the value in reserving judgement on the question of consciousness itself – a particularly valid point when dealing with the ecological perspective on action I have introduced in this article:

Attention is not just another ‘function’ alongside other cognitive functions. Its ontological status is of something prior to functions and even to things. The kind of attention we bring to bear on the world changes the nature of the world we attend to, the very nature of the world in which those ‘functions’ would be carried out, and in which those ‘things’ would exist. Attention changes what kind of a thing comes into being for us: in that way it changes the world. ... A mountain that is a landmark to a navigator, a source of wealth to the prospector, a many-textured form to a painter, or to another the dwelling place of the gods, is changed by the attention given to it. There is no ‘real’ mountain which can be distinguished from these, no one way of thinking which reveals the true mountain.

Science, however, purports to be uncovering such a reality. Its apparently value-free descriptions are assumed to deliver the truth about the object, onto which our feelings and desires are later painted. Yet this highly objective stance, this ‘view from nowhere’, to use Nagel’s phrase, is itself value-laden. It is just one particular way of looking at things, a way which privileges detachment, a lack of commitment of the viewer to the object viewed. For some purposes this can be undeniably useful. But its use in such causes does not make it truer or more real, closer to the nature of things.

... Is consciousness a product of the brain? The only certainty here is that anyone who thinks they can answer this question with certainty has to be wrong. We have only our conceptions of consciousness and of the brain to go on; and the one thing we do know for certain is that everything we know of the brain is a product of consciousness. That is, scientifically speaking, far more certain than that consciousness itself is a product of the brain⁵⁵.

Endnotes

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- 2 The basic classes of response system identified by Morsella are: air intake, tissue damage, food and water intake, elimination (micturating, defecating and regurgitating), temperature regulation and sleep onset.
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- 4 James, W. (1890) *The Principles of Psychology*, 2 vols., New York: Holt, vol.2, p.522.
- 5 Hommel, B. (in press) 'Embodied cognition according to TEC' p.13. In: Y. Coello & M. Fischer (eds.), *Foundations of Embodied Cognition*. Psychology Press. Pre-release version available at <http://bernhard-hommel.eu/>
- 6 Kaufer, S., Chemero, A. (2015) *Phenomenology: An Introduction*, Cambridge: Polity Press, p.216.
- 7 state space: 'all of the possible patterns or states that a system is capable of assuming' (p.509); degrees of freedom: 'the number of ways in which a system can independently vary. That is, how many different values can the components of a system assume without violating any geometric or physical laws' (p.145); inherent guiding principles: 'deterministic principles inherent within the system itself that guide the organisation of the system (within bodily systems these self-referencing principles are believed to be genetically established)' (p.156). Definitions from Edwards, W.H. (see below).
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- 9 This is not the only criticism of the cognitive approach. Two major weaknesses in cognitive approaches to movement are summed up in the context-conditioned variability problem (where motor programs that independently control muscular forces would be insensitive to the variable outside forces acting on the body such as inertia, reactive forces and gravity) and the degrees of freedom problem (where the available patterns of movement are so exponentially large that it would be impossible to control them centrally via motor programs). *Ibid.*, pp.143-5.
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- 15 Dreyfus, H. (2002), *Ibid.*, pp.378-9.
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- 21 *Ibid.*, pp.22-23.
- 22 *Ibid.*, p.27.
- 23 Csikszentmihalyi, M., *Ibid.*, p.36.
- 24 Jackson, S., Csikszentmihalyi, M., *Ibid.*, p.11, p.144.
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