

## Alexander Technique and Complex Adaptive Systems

### Alexander Technique and complexity

In the late nineteenth century FM Alexander made studied observations about human functioning. These were insightful and revolutionary. Some 150 years later, his observations continue to be ahead of the times. Consequently, they are still not widely understood or accepted in the general or scientific community.

This poses a problem because it removes our opportunities for government funding, wider audiences for our work and community support.

Alexander Technique is hard to explain to people. This may be because it is taught through a corporeal tradition, where a student imitates a master teacher. Greg Downey <sup>1</sup> in describing imitative learning says that the transmission of the learning must not be conscious. The learner must “look, then do what I am doing.” He suggests that learning leads to the development of subconscious intellectual values, systems of categorisation and perceptual schemas. However, there is usually always little cognitive or semiotic structure to the learning. Hence the difficulty to explain simple concepts such as, what is the Alexander Technique?

This difficulty can be interpreted in many ways by the public. A common response that people often make is to discount Alexander Technique completely.

Many would like a simple catchphrase to understand Alexander Technique. We live in an age of catchphrases and marketing slogans. However, meeting that requirement is always going to be a problem because of the nature of Alexander Technique and how it is taught. Alexander’s model of human functioning describes a complex system, not a simple one.

Complex systems have many features in common regardless of what system they deal with. Systems have goals, structures and rules. The Alexander Technique system comes about from the studied observations

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<sup>1</sup> Downey, G. (2010). “Practice without theory”: a neuroanthropological perspective on embodied learning. *The Journal of the Royal Anthropological Institute*, 16, S22–S40.  
<http://www.jstor.org/stable/40606063>

of FM Alexander(1869-1955). He described an important paradigm that distinguishes it from many other systems called “psycho-physical unity”.

Systems theorist Donella Meadows describes a “Paradigm” as:

*“.. the mindset out of which the system, its goals, structures, rules, delays and parameters arise.”<sup>2</sup>*

The Alexander Technique paradigm arises from a ‘**mindbody**’ set that defines thought, not as a cognitive function limited to the brain, but as an integrated activity of thought, movement and action.

It describes component parts that interact with variability, utilising both unconscious and conscious triggers; – we call this “use”. Human functioning is dependent on diverse factors that integrate when healthy. Functioning can be prevented from integrating by “disruptors” such as lack of adaptability, excess tension, sensory feedback faults and poor learned behaviours.

The Alexander model describes an intervention that allows the individual to re-calibrate and integrate all the components of thought, movement and action, for significant improvement of functionality.

That intervention is taught as the “Alexander Technique”. FM Alexander called his intervention by numerous names, “Constructive Conscious Control of the Individual” is a useful one to remember (It’s the name of his second book) as it well describes the process. The title suggests that conscious mindfulness is used by an individual as an intervention to gain control over human functioning. It follows that the development of consciousness is an important element of Alexander Technique.

Alexander Technique is exploratory. It is not based on providing a value outcome to the learner/client, such as occurs with surgical procedures, medicine or drug therapy. It is not a replacement for medicine. Alexander Technique’s value proposition is the development of conscious mindfulness skills that can lead to positive functional outcomes such as posture and movement self-regulation, improvement in all skilled activities, reduction of effect of disruptor patterns.

Awareness of thought, movement and action leads to increasing levels of self-regulation by a learner. This can lead to cascading benefits that add value to the learning. Issues such as chronic pain, poor posture, affected

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<sup>2</sup>Meadows, Donella H.. Thinking in Systems (p. iv). Chelsea Green Publishing. Kindle Edition.

gait and poor performance in skilled activities can be self-regulated, in many instances, as learners apply a new approach to activity that involves conscious mindfulness.

Alexander technique is emergent. The total of all the parts of learning is greater than the sum of the parts. In adult learning, the preoccupation is about what a learner needs to be able to do (skills) and what a learner needs to know to achieve the skill (knowledge). In Alexander Technique learners are involved in a very different pedagogical model that assists them to develop self-regulation through developing and enhancing conscious awareness.

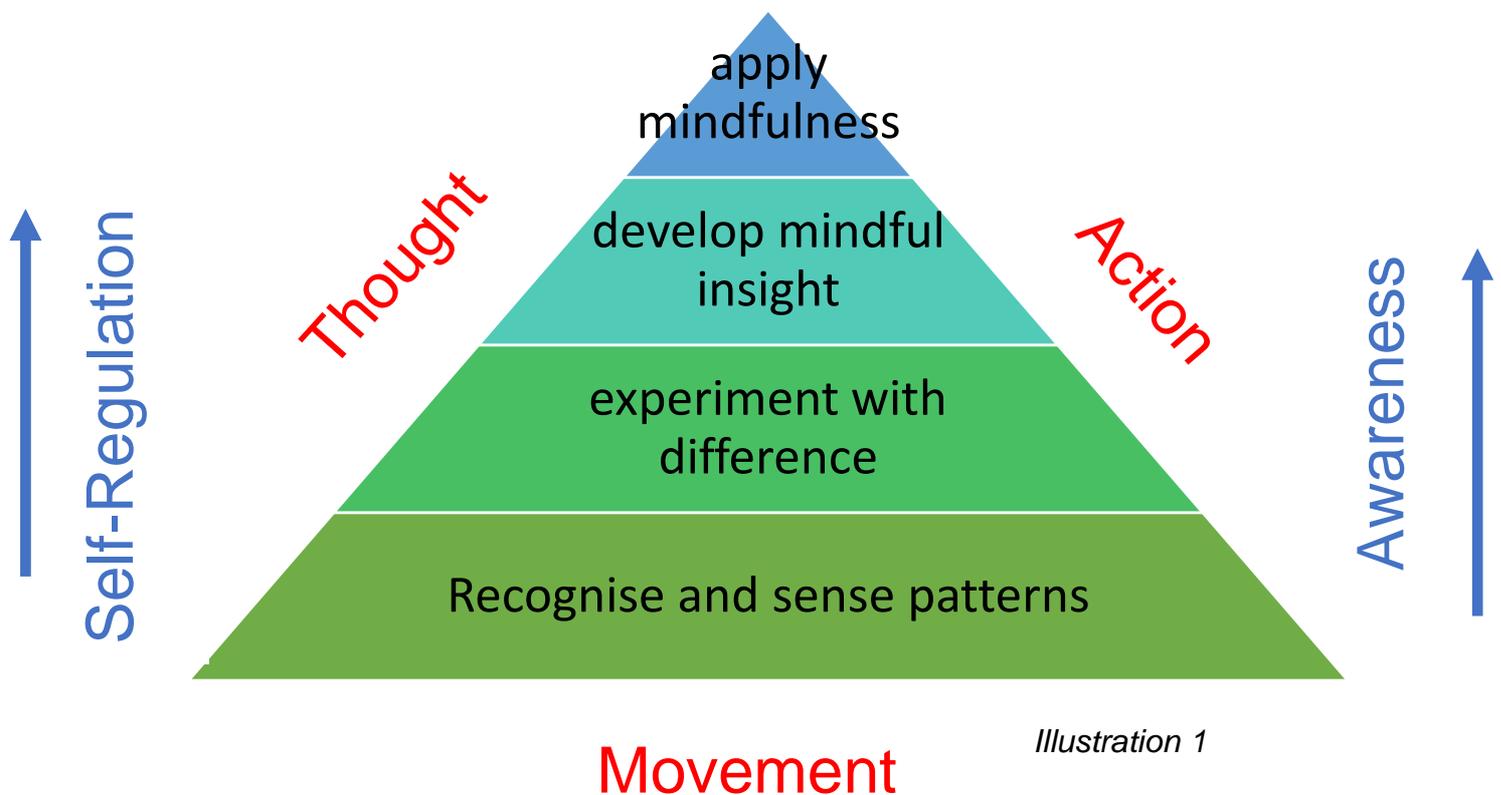


Illustration 1 shows a pedagogy where the learning grows out from process of expanding awareness and making connections from internal sensing to external mindfulness. Each stage of development is made practical through thought, movement, and activity.

The learning process is a formative one where self-awareness and self-regulation develop in step with a person's ability, not to an externally dictated timeline. Throughout the learning, self-awareness and self-regulation work together to bring insight. By 'insight', I am suggesting that learning is developed through an active learning process that involves and engages the learner within a process of experiment and discovery.

Consequently, knowledge is neither predictable nor set, but instead, develops as original source information that belongs to the learner.

Within the Alexander learning, self-awareness becomes finer and self-regulation becomes more controlled as the learners' experiences of coordinated movement, thought and action grow.

In a tradition of learning, handed down from teacher to student over the last 90 years, my own Alexander Technique teachers used their skilled hands to provide me with a motor sensory experience of movement, unencumbered by disruptors. I have carried on that tradition, in my teaching, to convey a sensory description of the Technique. The use of manual guidance has provided an immediate and strong impression for my students. I have witnessed many thousands of students benefit from an improvement in their functioning by applying Alexander's conscious control model.

The strength of handing down Alexander's discoveries through sensory learning rather than through language is that it provides a channel of communication, unbiased by language models. However, the weakness is that we risk obfuscating the Alexander Technique and losing clarity in our teaching process.

To describe Alexander Technique with just words, risks entering into the asymmetry of conventional models of information. Conventional models disconnect thought from movement and action. Against that risk, the benefit of using the primary communication mode is that words may describe ideas, experiments and insights that bring us together.

Alexander Technique teachers' skills and knowledge are assisted by developing multiple streams of information that provide diverse descriptions and understandings of FM Alexander's discoveries. By considering the Technique from many perspectives, we open ourselves to adaptive flexibility. I will address this concept later in this paper.

I understand the conceptual compromises that some people may feel that they need to make to explain Alexander's discoveries, but when I witness Alexander Technique relegated to a mundane posture therapy, movement exercise, or cure- all, I feel that it has been diminished. That's because I believe Alexander's discoveries to be far more significant in describing the human condition than exercise or therapy.

Alexander's discoveries are described in his four books for anyone to read and consider. However, the style of his language and complexity of his

ideas might tempt us into a complacent mode of understanding, reliant on familiar jargon and catchphrases. Alexander words such as “inhibition”, “direction”, “faulty sensory appreciation”, “primary control” come to be used as a shorthand method to communicate complex concepts.

Where an Alexander description grows static and predictable, the system that is built around that static information system will lose resilience because it fails to adapt, grow and evolve. Our resilience as Alexander teachers is a function of allowing multiple information flows to feed our understanding.

This article is my attempt at a mindful & provocatively different description of the Alexander Technique process, to assist in the deepening understanding of what it is that we teach.

### **Adaptive variability versus static stability- another description of use.**

A behaviour that is useful in one context may not translate as a useful behaviour in another. Think of a soldier on a battlefield. Hyper-vigilance is an appropriate and useful behaviour within that context. It maintains a certain high-level fight/flight response that can be called upon at any moment by the soldier. Hyper-vigilance keeps the sympathetic nervous system active, releasing cortisol and adrenaline to allow for instant response to danger. It informs the human complex adaptive system that it is in a situation of imminent threat. It has turned off digestion, immune response, and the calming influence of the para-sympathetic nervous system. It's the context of the battlefield that requires life or death decision making. The soldier's thought, movement and action have adapted, through military training, to meet this demand. In this context, the hyper-vigilant *use* of the self is desirable and appropriate. We could describe the behaviour as “resilient” because it aids in the soldier's survival.

If we, now, consider that same soldier is home from the war and still using hyper-vigilance as a fixed “*use*” of all the component parts. That *use* takes on a different meaning within mundane contexts. He or she cannot sleep, cannot easily engage with others, is permanently on-guard, maintains a permanent rigidity of muscles, is prone to infections and inflammations and has problems with digestion.

*“Resilience is not the same thing as being static or constant over time. Resilient systems can be very dynamic.”<sup>3</sup>*

The fixed-pattern offers a **‘static-stability’**, but it no longer serves that individual- in fact it constrains them. We can call the fixed pattern a “disruptor” because it is preventing adaptation to the new context. In our society, stability is generally thought of as a positive trait, but “static stability” becomes “*misuse*” once it is no longer correctly contextualised.

“Static stability” can involve the holding of a posture, a particular behaviour, or a particular belief that has become contextually inappropriate. Static stability can develop into a “*condition of use*”. It becomes permanent, fixed and rigid.

It becomes owned by the individual as a part of themselves. Other people can mistake the *misuse* as the identity of that person and have expectations for them to always behave in that manner. That kind of positive feedback reinforces the behaviour. An example would be that the stress behaviour leads to high stress situations, that are resolved with more stress behaviour, that proves that the stress behaviour was needed in the first place, that leads to more stress behaviour and so on.

When poor ‘*use*’ leads to outcomes that are perceived as successful, this can act as positive feedback. Smoking is an example of a positive feedback loop. Although harmful, the smoker has the habit reinforced by the physiological change from the effect of nicotine and consequent mood changes that occur. After the next drop in blood sugar, it is proven again to the smoker, as the nicotine gives the next sugar spike that reinforces the loop over and over. The internal positive reinforcement of the drug is stronger than the external advice to stop smoking.

Systems theorist, Donella Meadows<sup>4</sup> states that positive feedback loops act as amplifiers by reinforcing the direction of change. She labels “virtuous” and “vicious” circles. Positive feedback of a poor pattern may soon lead to crisis, whereas positive feedback of a good pattern can act as a constant influence for good. Alexander says as much in the Universal Constant of Living<sup>5</sup>.

It is possible to vary conditions that are statically stable in a person, but this may require care. The teacher might assist with development of safety mechanisms to prevent harm or gentle strategies to separate the self-

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<sup>3</sup> Meadows, Donella H. Thinking in Systems (p. 77). op. cit.

<sup>4</sup> Thinking in Systems Donella Meadows op. cit

<sup>5</sup> FM Alexander Universal Constant in Living

identity of the person from the static stable component before change can occur. Creating a rapport with the student; building a safe place; working to empower the student through steps could be one approach to help.

In the example given, an ex-soldier is not going to easily give up hyper-vigilance behaviours, as they have been associated and reinforced with life and death gravitas. Say you had this ex-soldier as a new client, what symptoms do you think they might be complaining about? Do you think that they would be complaining about PTSD or would it more likely be something like back pain, insomnia, headaches? How would you work with this person to achieve a positive outcome? How would this person's posture, movement, breathing, voice tone and demeanour be reflecting the internal pattern of *use*?

Many teachers would say that we are not psychologists, and we should stick to our process. I half agree. An Alexander Technique teacher works with a person's "*use*". We are **not** psychologists, and **nor** are we physiotherapists. "*Use*" is the systemic control mechanism that operates internally to provide human functionality. Alexander teachers can only work indirectly with use. You can't put hands onto an internal process.

Our job is to work with a psycho-physical system that is complex, variable, and nuanced. Consider the pedagogical map in illustration 1. How do we move each student from one phase to the next being as conscious of our own process as we are of theirs?

### **Alexander Technique is an unpredictable intervention**

*"I wish to make it clear that when I employ the word "use", it is not in that limited sense of the use of any specific part, an instance, when we speak of the use of an arm or the use of a leg, but in a much wider and more comprehensive sense applying to the working of the organism in general."*<sup>6</sup>

Alexander had discovered a systemic activity which he called "*use*". It involved the whole "organism" not just the body and not '*specific parts*'. He understood that '*use*' was complex internal processing, that occurred unconsciously. Eventually, he discovered that this internal mechanism could be influenced by conscious thought.

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<sup>6</sup> Use of the Self. FM Alexander pp8

American Alexander teacher, Joe Armstrong writes that Alexander made an important distinction between Manner of Use and Conditions of use.

**“Manner of use** pertains, of course, to how we do things—respond, behave, direct our neck-head-torso-limb relationship, etc.—whether we do them consciously or subconsciously. **Conditions of use** pertains mainly to the quality of muscle tonus (anywhere from extreme tightness to extreme flaccidity) that exists in us regardless of how good or how poor our manner of use may be at any given moment and regardless of whether the qualities of tonus are long-standing or more recently built up. In either case, conditions of use usually cannot immediately be altered at will, whereas most aspects of manner of use can often be altered reasonably quickly through a brief application of the skills of inhibiting and directing.”<sup>7</sup>

I'd like to clarify these definitions. Alexander purists will note that Alexander was not consistent with his usage of the terms across his four books. However, Joe Armstrong does map the linguistics in his article cited below [*recommended*].

**“Manner of use”** is usually a patterned response. You could think of it as the program that runs our functioning. This patterned response may often result in unpredictable or unhelpful thought, movement or action.

Alexander found that the “manner of use” can be influenced by conscious control. The Alexander Technique focuses ways that the manner of use can be altered for improvement. Alexander discovered that there was an indirect way that allowed disruptor habits to be prevented. Incredibly, when this is achieved a natural integration of thought, movement and action will occur. In the Alexander Technique we discriminate between unconscious, unhelpful habits (poor use) and consciously directed preventing pattern that allow integration (good use).

Within the Alexander pedagogy (illustration 1) the learner learns to recognise and become aware of patterned behaviours. They will be guided to experiment with conscious control through movement, thought and activity by their teacher. As they gain self-awareness, they will begin to self-regulate, this will lead to improvement in functioning. As their awareness builds, they are able to exercise more conscious control with more accuracy and less assistance from a teacher.

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<sup>7</sup> <http://www.joearmstrong.info/MannerAndConditions.html> Joe Armstrong Boston 2019

**Conditions of use** are limits that are fixed, imposed, or develop over time that affect our overall functioning. Joe Armstrong is correct when he says that “conditions of use usually cannot immediately be altered at will.”

Nevertheless, as we assist our students to increase self-awareness and self-regulation, the changes that occur involve the whole person. This can change the learner’s relationship to the conditions of use or sometimes it can impact on the condition itself. Being aware of conditions of use; identifying and assisting the learner to prevent those limitations, where possible, is an important part of the teacher’s task.

**Functioning** is the end-product of the system’s outputs. Functioning is easier to observe. We can see postural alignments, muscle tension, gait, ease of motion, balance, behaviour and so on. Functioning is the total output of the component parts of the system. Ideally body and mind work cooperatively to achieve action. When this is not so, we can attend to the thought process and begin to prevent disruption of unity.

When we look at behaviour, nuance, fineness, balance, emotion, social engagement, communication and so on we see that the whole psycho-physical human is greater than the sum of the component parts.

The Alexander Technique suggests that a person’s manner of use, their conditions of use and the resultant functioning are interdependent. Each element influences and alters the other. This relationship can be an influence for poor outcomes that can’t be resolved at the surface level. It can also be an influence that creates positive outcomes that develop and evolve into measurable improvement.

This has great significance with regards to our expectations for learning and practicing Alexander Technique. It makes the Technique very effective and life changing learning.

**Variability** is an indicator of a complex system's ability to adapt, learn and evolve to changing circumstances and context. Throughout our life, our success is measured by our ability to adapt, learn, and evolve to change. Human life would be impossible without that facility. Consider our planet. Very little of it is ideal for human habitat, a large part is cold or overly hot or barren. We have made inhospitable places acceptable habitats by our ability to adapt, learn and evolve.

I sometimes describe Alexander Technique as a method of adding more choices to one’s menu. The Technique is not about conformity, correct posture, restraint, or obedience. It’s not about creating stability or

predictability. It's about presence, conscious awareness, and the ability to create variance in the system for outcomes that meet the current conditions (adaptability).

## **Reductionism, Holism and Emergence**

It is incumbent on Alexander Technique professionals to explain ourselves. We make the claim that Alexander carries value for people, and we accept payment for our service.

So, what is that value and on what is it based? Alexander doesn't require belief or faith at any point. It develops an evidence-based learning structure, where the learner uses experiment and process to gain important self-knowledge. There is enormous complexity to Alexander Technique and its mechanism. The complex nature of Alexander technique sometimes puts it ahead of science. Nevertheless, science is the mechanism of proof in which society, government and people place credence. Therefore, it is important that teachers can place the Technique within current scientific discussion.

Over the last few decades, in scientific and philosophical discussion three perspectives on human functionality have developed.

The first perspective "**reductionism**"<sup>8</sup> says that to know the system you must understand each component. The idea is that by knowing each component part of a system intricately, you come to know the whole system. This approach has led to some spectacular success and discovery in the field of medicine, science, and philosophy. The systematic categorisation and labelling of human anatomy have led to an extraordinary explosion of knowledge of human functioning and pathology. It has also led to a strange model of human functioning where each component part is dealt with as separate from the other. Therefore, one has a problem with one's nervous system or one's vascular system, one's back or one's shoulder. An emphasis is put onto how each part is affected by disease, its pathology, diagnosis and treatment.

When this approach has been without adaptive flexibility it has often made people feel disenfranchised from their own health and wellbeing. As anyone who has entered conventional medical treatment may know, you

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<sup>8</sup> <https://academic.oup.com/biolinnean/article/112/2/261/2415616>

often feel as if you are no longer yourself-you have become the gall bladder, the cancer, the faulty knee.

Current research is showing that there is so much more complexity to our structure than this mechanistic model.<sup>9</sup> What role does a person's thoughts, movement and action have in restoring wellbeing in a balanced constructive way?

A colleague was giving an Alexander workshop for a group of physiotherapists. They had asked him to work with one of their patients so that they could see "the Alexander approach". One of the physios came in late and was heard to ask a colleague, "Is this the shoulder?" To which my Alexander colleague correctly replied, "No, this is Ken!" In that anecdote is reflected the significant difference of approach that Alexander Technique takes from conventional reductionist health approaches.

In reductionism, each component part of a system works discretely. Although the component parts work together, each part remains unaffected by the interaction.

Alexander Technique has a number of studies that have demonstrated efficacy within this reductionist model.

"Of 271 publications identified, 18 were selected: three randomised, controlled trials (RCTs), two controlled non-randomised studies, eight non-controlled studies, four qualitative analyses and one health economic analysis. One well-designed, well-conducted RCT demonstrated that, compared with usual GP care, Alexander Technique lessons led to significant long-term reductions in back pain and incapacity caused by chronic back pain. The results were broadly supported by a smaller, earlier RCT in chronic back pain. The third RCT, a small, well-designed, well-conducted study in individuals with Parkinson's disease, showed a sustained increased ability to carry out everyday activities following Alexander lessons, compared with usual care. The 15 non-RCT studies are also reviewed.

**Conclusions:** Strong evidence exists for the effectiveness of Alexander Technique lessons for chronic back pain and moderate evidence in Parkinson's-associated disability. Preliminary evidence suggests that Alexander Technique lessons may lead to improvements in balance skills in the elderly, in general chronic pain, posture, respiratory function and

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<sup>9</sup> <https://pubmed.ncbi.nlm.nih.gov/11807730/> Looks at the multifaceted functioning of the heart and blood cells and hormone creation.

stuttering, but there is insufficient evidence to support recommendations in these areas.”<sup>10</sup>

A recent paper by three researchers has developed a science-based description of a possible mechanism to explain Alexander effectiveness.

*“...we posit that mental phenomenon such as intention and spatial attention influence postural tone, the background muscle activity that stabilises body configuration and that these changes in postural tone in turn affect many aspects of the motor system.”<sup>11</sup>*

This detailed research paper is important reading for Alexander teachers because it provides a science-based model for the Alexander mechanisms.

Reductionism allows for predictability and ‘quality’ (quality suggests a standardised service identical for everyone). We can predict how each part will work (because they are unchanging). We can employ risk management (such as diets, non-smoking, pharmaceuticals) to overcome individual part failure, where a part has been identified as the cause of a health issue. Treatment is delivered to the ‘patient’/consumer in a highly formatted and standardised way.

Reductionism has been successful in supporting a mechanical model of the “human machine”. The heart is merely a blood pump, the liver a filter and human consciousness is housed solely in the brain. Research is currently questioning the accuracy of this model<sup>12</sup> where digestive systems are now seen to communicate and develop neurotransmitters; hearts are observed communicating emotion; connective tissue is bridging information into the brain. It’s an exciting time.

Alexander Technique has research to back up that it’s not just some kind of quackery. However, Alexander doesn’t fit the standard reductionist model. This is because the paradigm is a complex system.

## Holistic Model

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<sup>10</sup> <https://pubmed.ncbi.nlm.nih.gov/22171910/> Evidence for the effectiveness of Alexander Technique lessons in medical and health-related conditions: a systematic review J P Woodman , N R Moore

<sup>11</sup> Potential Mechanisms of the Alexander Technique: toward a comprehensive neurophysiological model. Cacciatore, Johnson, Cohen. Kinesiology review ©2020

<sup>12</sup> <https://pubmed.ncbi.nlm.nih.gov/11807730/>

The second perspective on human functioning is called "**holism**". This perspective suggests that the only way that you can truly understand a system is to look at the working of all the components together.

This creates an issue. How can we observe such complexity, which involves millions of involved components, in dozens of processes, and gather enough information to allow us to address the myriad health issues that afflict humans?

Alexander was, in my opinion, a gifted and astute observer. He developed and carried out long running experiments to validate his observations and he was able to create a holistic model of human functioning that is still as compelling today as it was 130 years ago.

He recognised that human activity is neither an isolated nor a random activity. He noticed that movement was not one event but a series of events involving all the component parts of a human being. In Alexander's observation the whole body and the mind is involved in coordination to allow human functioning. He called that whole body and mind activity "use".

He suggested that there was a coordinating mechanism for this organisation of human activity. He observed that one easily recognisable indicator that reflected this coordinating mechanism was the relationship of head balance to spinal compression. He was also able to demonstrate that the relationship of head to spine was a constant leverage point to gain access into the whole system of coordination.

By using our hands to provide guidance at this primary leverage point, Alexander teachers can assist a person to experience coordination of their whole human functioning in a sometimes new and liberating way.

Interestingly, the effect of this coordinating experience cannot be predicted. For some pupils it represents a profound positive change, a liberation of tension. For others it seems to make little or no difference, that they can feel or articulate, and for others it creates an experience that is dumbfounding. They don't know how to describe what they have experienced. In many instances a teachers hands influencing head balance and spinal decompression will result in the pupil experiencing changes in their feet, their hands, their general demeanour.

Alexander begins his book, Use of the Self<sup>13</sup>

*“it is impossible to separate “mental” and “physical” processes in any form of human activity. This change in my conception of the human organism has not come about as the outcome of mere theorizing on my part. It has been forced upon me by the experiences which I have gained through my **investigations in a new field of practical experimentation upon the living human being.**” (my emphasis)*

Human activity, as Alexander describes it, is a system where mental and physical are indivisible. Thought, movement and action are all functions of a system that gathers huge amounts of information from the sensory organs, the attitudinal reflexes and the afferent nervous system then translates this into action via the efferent “motor” system. Discrimination, inhibition, excitation and coordination occur as a whole-body organisation to provide ‘real time’ responses.

Consider all the behavioural components of “mental” things such as emotion, social engagement, thinking ability, intelligence, spatial awareness and sensing.

Modern neurology suggests that Alexander’s observation was very accurate. We now study the action of the autonomic nervous system with its sympathetic, parasympathetic, and enteric nervous systems. Each part of that nervous system has a multitude of effects, both fixed and variable, on our behaviour and physiology.

Interesting research on the vagus nerve (the tenth cranial nerve) demonstrates that the vagus nerve can influence amongst other things social engagement, hearing and prosody, emotional responses, heart rate fight /flight or rest/digest and many other aspects of our physiology and psychology.<sup>14</sup> Therapists are using stimulation of the vagus nerve to work with healing from trauma and PTSD.

Modern science is based on being able to provide evidence and measurement. Within a reductionist model this regime works well. Within a holistic model evidence and measurement are much harder to furnish because ‘complexity’ provides too much information that is random and unpredictable. Once we look at emergence, conventional rules fly out the window and a purely linear cause and effect approach becomes much

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<sup>13</sup> Use of Self. op.cit pp8

<sup>14</sup> Mindset Science. Podcast. Stefanie Faye <https://stefaniefaye.com/podcast/season-2-ep-5-resilience-stability-and-hyper-coherent-networks/>

harder to use to validate things such as efficacy. Efficacy requires predictability. Holistic and emergent systems by their very nature are unpredictable.

Observation shows that in some systems, such as complex human adaptive systems, the component parts work one after the other, but all at the same time. This leads to a paradoxical situation where the total output of human functionality is greater than the sum of the parts. This paradox requires a different model to fully understand the system of human functioning that we work with as Alexander teachers.

I have noticed, over 30 years of teaching, that my students not only improved their posture, gait and movement-they seemed to be getting smarter during the course of lessons. Have you noticed this?

American clinician and neuroscientist, Stephanie Faye, discusses this phenomenon in her Mindset Science podcast<sup>15</sup>. She relates that research into growth mindset shows that the human brain can grow, develop and evolve at any time in a person's life.

She relates that “top down” processes and “bottom up” processes can stimulate this development. Bottom-up processes include enriching the external world through developing sensory mechanisms. This helps to develop neural circuitry. Top-down processes involve using imagination and mindfulness to stimulate the development of the brain function.

As we teach our students to open their awareness, to prevent old patterns of response and use new ones, are we also stimulating neuroplasticity, new patterning and myelination and creating a growth mindset?

Understanding this neurological research makes it impossible for me to see Alexander Technique as merely a posture technique. I have never seen it as such, but researchers working with emergent models are providing us with a more accurate description of what we do.

For over 120 years Alexander teachers have been assisting people to become aware and make psycho-physical change through “thinking in activity”. Even in this modern age, there is no other system that provides such a pragmatic leverage into the whole system of human activity as the Alexander Technique does with its conscious constructive control method.

## **Emergence**

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<sup>15</sup> <https://stefaniefaye.com/podcast/season-2-ep-5-resilience-stability-and-hyper-coherent-networks/>

The third perspective I would like to discuss in understanding human functioning and the Alexander Technique is called "emergence".

Alexander is reputed to have said, "The phrase 'All together, one after the other' expresses the idea of combined activity I wish to convey."<sup>16</sup>

Emergence describes when a whole system is more than the sum of all the component parts. This indicates that the component parts have an identity that is different within a system, to the identity they have in isolation. So, if I get a person to move their arm or their leg, that limb is going to perform differently to when it is being utilised by the whole system. Arms, legs and all our component parts do not work in isolation. Their "identity" is different in the system.

Think about your identity as you read this document. Now imagine that you are in your party clothes with a cocktail in hand and operating within an ebullient group of friends, and now in a business meeting, and now in a bush camp and you are being called upon to work with a group to put up a large tent. What about **you** stays constant, what changes? Does our human identity reside in our habit or is it another process entirely? What changes in a person when they release tension from their responses? Think about how someone's posture identifies them. What happens to that person when their posture alters using Alexander Technique?

Each component part of the human system of functioning has a structural identity, an action, an interaction, and a feedback message. Our component parts may also have variability, that allows them to adapt to their environment and the unique make-up of the current situation. Taking all this into account, we can see why the total adds up to more than the sum of the parts.

This make-up describes a highly unpredictable and individual set of outcomes. When we consider the Alexander process, we are not mechanics, we work with individuals taking into account their unique expression. This requires a high degree of understanding, observation, and care by the teacher. The complexity of this emergent system of teaching means that the lesson is thwarted by standardisation. This means that the Alexander pedagogy cannot depend on lesson plans or standardised blocks. It depends on the teacher.

The Alexander teacher must be fully coherent and articulate with Alexander's discoveries as well as with teaching techniques and an

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<sup>16</sup> <https://upward-thought.com/tag/fm-alexander/>

understanding of the pedagogy of lessons. They must also be able to guide a student with thought, movement and action and nurture the conditions that will allow the student to scaffold and develop their own learning.

Alexander Technique requires an agreed pedagogy. This method and teaching practice needs to be crafted with care. We are not served by creating a fixed orthodoxy. However we are neither served by being unable to stand up for the Technique against criticism, being unable to articulate the scope and breadth of Alexander discoveries or being unable to explain how Alexander Technique is taught and how it works.

Alexander Technique teachers do not fix bad backs, or posture or breathing. We work with the complex wholeness and unpredictability of humans and in a context of safety and nurturing, we show them how to increase the range of choices available to them, system wide, by applying conscious control.

Reductionism, holism, and emergence are views that don't necessarily conflict. Each model provides a perspective of human development. As we move from reduction towards emergence we notice greater complexity, smaller scale but more abundance of information. By becoming familiar with each model, Alexander teachers can address some of the effects of our work that do not easily fit in to cause and effect models, we may be able to better communicate with health professionals and explain our unique approach.

### **Is there really a central coordinating mechanism?**

Alexander described a central coordinating mechanism which organises all the component parts of movement to provide a coherent, integrated response to stimuli rapidly. It's important to note that science has not identified this central coordinating mechanism, the Primary Control for Human coordination.

The relationship of the head to the neck can be easily observed and is a way, that we have found, to predict the *quality* of movement coordination that will occur.

Alexander established criteria that can easily be measured to establish the quality of coordination that is occurring. The criteria are: If the head is crushing backwards and down, placing pressure onto the spine the

coordination of the whole system is being disrupted. If the head is balancing forward and buoying up off the spine coordination is being allowed.

This connection of external movement to internal process of integration is one of the seminal observations that Alexander made. Each of our students are taught to determine that relationship for themselves so that they know when to prevent the disruption of their coordination. But does the Primary Control for Coordination really exist?

Many Alexander teachers equate the Primary Control to Professor Magnus of Utrecht's discovery of the "attitudinal reflexes" which he describes as the "head leads, and the body follows."<sup>17</sup>

This equation has long since been criticised and brought into a more realistic perspective<sup>18</sup>. Alexander's Primary Control for coordination is probably a far more complex mechanism than just reflexes. Alexander alluded as much when he wrote to Professor Frank Pierce Jones in 1946;

*"There really isn't a primary control as such. It becomes something in the sphere of relationship" (Alexander to Prof. Frank Pierce Jones, 1946)<sup>19</sup>.*

I wonder whether Alexander is suggesting that a primary control mechanism would not be found to have one physical presence. Instead, perhaps, science may discover a whole-body network communication and coordination system that provides us with the observable head and neck relationship.

Research suggests that there is a vast amount of communication occurring within all the component parts of the human body<sup>20</sup>. This communication is occurring at molecular, cell, nerve, neuron level. Research showing interconnection between heart and brain, digestive system and brain and throughout the myofascial system is providing insight into the complexity of coordination.

Alexander was not a neurologist or even a scientist. He did have a genius for observation. The relationship between head balance and spine tonus

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<sup>17</sup> <https://www.alexandertechniquescience.com/posture/a-history-of-magnus-in-the-alexander-technique/> Jean Fisher January 2020

<sup>18</sup> Fisher, op. cit History of Magnus in the Alexander Technique

<sup>19</sup> Alexander, F.M. (1946). Letter to Frank P. Jones in Dimon Institute Archives, New York.

<sup>20</sup> <https://pubmed.ncbi.nlm.nih.gov/1459184/> Bidirectional communication between the brain and the immune system provides just one perspective

is, in my opinion, **not** the coordinating mechanism. It **is**, however, a powerful indicator about the **quality** of the process of coordination that is occurring at that time.

*“A complex adaptive system is a system where the behaviour of the subsystems/people are non-linear and may not be predictable and are constantly adapting to micro-events that emerge from the dynamics of the system.”<sup>21</sup>*

Alexander’s consideration of human functioning has all the hallmarks of a description of a complex adaptive system.

The multitude of feedback mechanisms that we have operating in our human functionality may also be operating at sub-optimum levels. A positive feedback loop, according to Donella Meadows<sup>22</sup>, is self-reinforcing. The more it works, the more it gains power to work some more. The more you misalign your posture, the more incorrect uprightness feels, the more you misalign. It’s a vicious circle.

Negative feedback loops are self-correcting but can cause problems because they require error to operate, they can be reinforcing error, rather than correction. Missing feedback loops can corrupt the flow of information. There are many issues with feedback that can influence the individual.

Alexander identified ‘faulty sensory appreciation’ as an issue that led to a variable, reinforcing error in movement. Because it is variable in its error, there are times where the feedback is accurate and times where it is not.

Somehow, he understood that it wasn’t the sensory mechanism that was impaired, damaged, or non-functional but that it was the interpretation of data from those sensory mechanisms that had gone wrong.

Its extraordinary that he could be aware of that mechanism at all in the 1890’s. When we state the platitude that, “Alexander was ahead of his time” we should really understand in what way he was ahead of his time.

Alexander understood integration of thought, movement and action. he recognised complex adaptive systems and was able to describe many of the functional components that work together to provide us with functional outcomes.

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<sup>21</sup> Stephanie Faye -Neuroscience mindset Podcast. 2020

<sup>22</sup> Leverage Points-places to intervene in a system. Donella Meadows Sustainability Institute 1999

Alexander recognised how human systems can go into fault and devised a method of intervention that allows a person to prevent the faulty pattern.

Finally, by using mindfulness as his main tool for intervention he has created a system that delivers cascading improvements across the whole range of human functioning.

Attacks on the efficacy and integrity of Alexander Technique over the last couple of years by groups such as Doctors for Science in Medicine and by the National Health and Medical Research Council look for **simple proofs** to demonstrate that a health approach works. Alexander Technique teachers should be aware that simple proofs are not going to be complete, in the same way that catchphrases and marketing slogans will not accurately describe Alexander Technique. It is important that we understand the complex mechanisms behind the success and uniqueness of Alexander work. It is also important that we begin to articulate that complexity in ways that are coherent and confident.

It's essential that we work to discuss, develop and evolve coherent pedagogy for our teaching practice; strong descriptions for the mechanisms of Alexander Technique; teaching standards that work with holistic and emergent models. This will develop our resilience as a profession.

Alexander Technique is a learned process of mind and body awareness that develops interoception. Interoceptive awareness contributes to health and wellbeing by allowing for self-regulation and integration of functional responses to internal and external stimuli. Alexander self-regulation involves preventing the completion of habitual responses, discriminating the quality of response and choosing the most advantageous response in terms of movement, posture and breath.