ALEXANDER TECHNIQUE PHENOMENA

PATRICK JOHNSON

During the last few years Dr. Tim Cacciatore and I have been giving workshops and webinars to help teachers explore the relevant contemporary science for Alexander technique (AT). We delve into the wealth of scientific research from the last 30 years or so, including work on postural mechanisms, postural tone, balance, motor planning, motor learning, inhibition, and psychosomatic effects. Though there are many fundamental questions left unanswered by current science—the biomechanics of our body and the functioning of the nervous system are very complex—we can begin to build a framework of scientific ideas, based on current peer-reviewed scientific consensus, that can help us understand these benefits and experiences of A.T.

Many Alexander teachers know that some of our most common ways of explaining the Alexander technique rely on science from early last century, such as the work of Charles Sherrington and Rudolf Magnus on reflexes and George Coghill on the Ambystoma salamander. Part of the purpose of our workshop is to show how this science is out-of-date and explore more current research. When we started teaching the workshops, we expected that some teachers would be resistant to giving up familiar explanations for why A.T. works. But overall, teachers have been eager to learn about more recent, relevant science.

What has surprised us is a much more fundamental challenge: when we ask teachers to describe the phenomena they observe in teaching and learning A.T, they have a hard time not offering explanations at the same time. In teaching, observation and explanation often go hand-in-hand. A student has an experience and wants to know why. Explanation is also important in marketing—prospective students want to know why A.T. works. In science, however, observation and explanation are distinct processes. Observation involves clearly describing phenomena, with or without measurement tools. Explanation is about building a theoretical model. Exploring the difference between observation and explanation—and noticing when the two get confused—is a useful challenge that can help us to thinking critically about A.T. and the science that can help us understand it.

Separating observation from explanation:

Here's an example we use in our workshops to encourage teachers to practice describing a phenomenon. The procedure isn't taken from an A.T. lesson, but it shares some similar features to common A.T. experiences.

'Stand sideways next to a wall and push hard against it for 40 seconds as if to raise your arm. After 40 seconds, step away from the wall and see what happens. Then try to describe the phenomenon that occurs.'

Take a moment yourself to try this.

Here are some of the descriptions of this phenomenon teachers offered in our workshops:

1. 'I didn't feel like I was lifting the arm even though it was moving.'
2. 'If I lifted the arm, the arm felt light, as if it was floating.'
3. 'The arm was working less.'
4. 'My reflexes took over and lifted the arm up.'

Notice that the first two statements are more phenomenological—they attempt to describe the experience specifically. One teacher reported feeling like they weren't the agent of the movement, 'I didn't feel like I was lifting the arm…' The other reported qualities, 'the arm felt light, as if it was floating.'

The third and fourth statement offer explanations for what was occurring rather than descriptions. The third statement is a statement about degree of effort—how much work is actually done. The fourth is a statement about the mechanisms involved; in this case, a reflex for raising the arm. It's also not clear if the explanations are metaphorical or an attempt to explain what is going on underneath.

The effect being observed in the experiment - the involuntary movement of the arm and associated feeling of lightness after prolonged pushing against the wall - is called Kohnstamm's

Phenomenon, named after the scientist that first described it over 100 years ago. The phenomenon as described by 1 and 2 above is very robust: most people experience and describe it in roughly the same way. And these feelings—a loss of agency, as if the arm is moving without your deciding to move it, as well as the feeling of lightness—are of great interest to neuroscientists. These reported sensations give insights into conscious control of movement and estimation of effort.

By contrast, the models inadvertently proposed by 3 and 4 above for what is going on are demonstrably wrong. Even though the arm feels lighter, the measured muscle activity is normal for the task. And while the exact explanation for the phenomena is still unknown, it is known that Kohmstamm is not caused just by increased reflexive activity[1].

Many of the effects found in Alexander lessons, feelings of lightness, sense of loss of agency, changes in states of alertness, would be just as interesting to scientists to research. But the Alexander technique is not as well known or researched as the Kohnstamm Phenomenon. Furthermore, if we want to connect with science a first step will be to describe these effects separate from explanations.

There are many examples in the A.T. literature of mingling explanation with observation. One of the most famous is Frank Pierce Jones' account of his first lesson, when he describes how A.R. Alexander stood him up for the first time:

> I was fully conscious through the movement, and it was a consciousness, not of being moved by someone else . . . but by a set of reflexes whose operation I knew nothing about.[2]

Jones is describing an experience familiar to A.T. teachers—the feeling that something is happening in the body that is not consciously planned or initiated. But his means for describing this experience is to introduce the model of a reflex system driving the movement. Because the model is folded into the description of the experience, it is tempting for the reader to associate the two. As it turns out, his model is wrong. Reflexes cannot generate the complex movement from sit-to-stand.

The temptation of jargon

One of the most common types of questions we get in our workshops is how science explains some principle in the Alexander technique—for example, the primary control. These questions are very difficult to answer. Let's look at the following statement from Alexander:

> The experiences which followed my awareness of this were forerunners of a recognition of that relativity in the use of the head, neck, and other parts which proved to be a primary control of the general use of the self.[3]

'Primary control,' 'use of the self,' and 'relativity in the use of the head, neck, and other parts' are jargon—words that are meaningful to A.T. teachers, but largely inaccessible to anyone else. More importantly, they refer to a range of experiences and phenomena, any of which could be open to scientific research but as a whole are difficult to define precisely and/or measure directly.

In our workshops, we challenge teachers to describe A.T. experiences with as little A.T. jargon as possible. When we asked teachers what kinds of specific phenomena they associate with the words 'primary control,' one teacher offered this fairly simple description:

> Sometimes it feels like releasing tension in the neck cascades beneficially throughout the whole body.

By not trying to describe primary control in its entirety, he/she is able to articulate a well-

defined phenomenon understandable to a general audience and without jargon. In fact, something similar to this effect was recently measured.[4]

Believing our own spin

Another barrier to clear description is 'spin.' From a marketing perspective, there is nothing wrong with positive spin. It's a quick way to tell your student the benefits you think they will experience. But when practicing description—what we are doing rather than how good it is—it's important to avoid adding spin and use neutral language instead.

A lot of non-neutral language is baked into common A.T. phrases. For example:

> Alexander observed debauched kinesthesia in students.

'Debauched' asserts a problem without describing what is meant. Not surprisingly, debauched kinesthesia is an area of confusion among teachers in our workshop. Many take it to mean a general breakdown in the interpretation of sensory information from sensory receptors, something which Alexander was not in a position to observe directly.

Compare that with the following sentence.

> Alexander found that students made a number of errors when assessing their absolute body position. For example, they would think they were standing bent to the side when in fact they were standing straight

The second statement is a specific observation of a proprioceptive error. It probably doesn't encompass the entire meaning of faulty sensory appreciation that Alexander was getting at. But it's clear and specific about what is being described and as such lends itself to competing scientific explanations. In fact, correlations between proprioceptive errors such as this one and problems like chronic pain is a very active research topic in movement science.[5]

Here is a slightly subtler example:

> Alexander technique gets rid of harmful patterns of tension.

While perfectly fine in a marketing context, the statement implicitly divides tension into 'harmful' and 'good' and assumes that we get rid of the harmful stuff. More specific and value-neutral descriptions of 'harmful patterns of tension,' might sound like:

> My student braces their lower back when sitting in the chair.

> Students sometimes jump out of the chair when I try to guide them up smoothly.

This kind of bracing and 'jumping' and their association with Alexander technique can indeed be measured.[6,7]

Wrestling with scientific terms

There's another way to talk about 'harmful patterns of tension' in the Alexander technique:

> Alexander technique can reduce patterns of co-contraction

Co-contraction is a more specific and neutral term than 'muscle tension' and is itself a well-defined phenomenon. As it turns out a reduction in co-contraction after A.T. lessons has been measured.

The challenge for A.T. teachers, however, is that co-contraction is a technical scientific term, that can seem as opaque in meaning to them as A.T. jargon is to anyone else. The advantage of learning the technical terms, however, is that they are specific, value-neutral, and connect A.T. to the very exciting current science that can help explain many aspects of our work.

There are all sorts of traps one can fall into when appropriating science into our terminology. The most well-known trap is 'cherry picking', selecting scientific articles that support an idea rather than look at the overview of scientific consensus. Other traps include using general 'feel' of an idea rather than the specific content, extending the limits of a model beyond its range of applicability, not staying up to date, and not using high quality, recent, peer reviewed sources.

Unfortunately, as a community, we've fallen into most of these traps through the years. The scientific explanations used in Alexander technique books and articles often rely on either outdated or fringe sources. As a rule of thumb, stick to well defined, non-controversial terminology. If you are unsure about a bit of scientific terminology, check with several experts in the fields and demand recent, high-quality references.

Separate scientific explanation from what is useful pedagogically

Sometimes we encounter strong resistance from teachers when debunking a scientific model that is near and dear to them. For example, some teachers take strong issue with our rejection of biotensegrity as a reasonable model. We show that the layout of the musculoskeletal system does not reflect tensegrity, and research on tensegrity is either absent or only referenced in very weak journal articles. Emotions can even run high in some of these discussions.

But the debate settles down when we move away from the underlying explanation and discuss the observed phenomena in question and the pedagogy--that is, why teachers use the idea of biotensegrity in lessons. For example, some teachers use the concept of biotensegrity pedagogically as an antidote to the rather passive image of 'stacking the spine'. They suggest that the tensegrity image models the dynamic spreading of tone across the whole body that makes the system seem springy. They also mention the non-locality of effects--a change in one part of the body can influence changes across the whole system.

Effects such as lively tone and springiness across the whole back are important phenomena in A.T. lessons. If demonstrating the features of a tensegrity model with your students helps them to visualize the qualities of use that you are going for, then by all means use it as a pedagogical tool. But it is important to recognize that the body itself does not really conform to the definition of tensegrity in more rigorous ways. In this case the teacher can simply describe the model as 'a useful image when thinking about the body and good use'.

Be comfortable with not knowing

As Dr. Rajal Cohen showed in her plenary speech at the 2018 congress, science is catching up to Alexander technique. But this doesn't mean that scientists have all the answers. Many of the more subtle, whole body effects—the kinds of things A.T. teachers are most interested in—challenge the limits of current science. Chronic back pain, for example, is still not fundamentally understood. In fact, chronic pain itself is still a bit of mystery. We still do not fully understand how the nervous system organizes and divides tasks to coordinate stability and movement. While scientists are aware that posture, tension, and anticipatory activity can affect psychological states and visa versa, the experiments thus far have been very rudimentary. It's not all there yet.

Studying the science of A.T. requires us to be comfortable with not knowing. In fact, combining

clear descriptions of A.T. with current research may inspire as many questions as it answers. This is both frightening and exciting. Frightening because we may not be doing quite what we think we are doing. Exciting because venturing into the unknown is key to our work and part of the reason many of us got into this in the first place.

Try it yourself

If this all sounds daunting, start simple. Take a moment to describe some A.T. experiences or observations as specific phenomena, eliminating all jargon, spin, and vagueness. It's a good exercise in articulating what is going on and it is an essential step for connecting our work with science.

There are other benefits. Alexander teachers need to be skilled in speaking to a wide variety of people: students of all ages, medical professionals, and scientists. The more precisely you learn to talk about the Alexander technique, the more easily you can learn to translate these ideas for different audiences.

Familiarity with current concepts and terminology in these fields provides us with essential tools for understanding and communication. If we combine this with phenomenological descriptions of what we do, there is every reason for scientists to take us seriously and for us to move steadily forward with science.

Thanks.

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For more information about workshops with Dr. Johnson and Dr. Cacciatore visit www.alexandertechniquescience.com/resources/

Endnotes

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