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Reflex, Habit and Learning

Suzanne Finger

Reflex, Habit and Learning

by

Suzanne Finger
B.Mus., University of Victoria, 1999

A Thesis Submitted in Partial Fulfillment of the
Requirements for the Degree of

MASTER OF ARTS

in the Department of Curriculum and Instruction

We accept this thesis as conforming
to the required standard

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ABSTRACT

This thesis explores the way in which the primary reflexive pattern of expansion and contraction through the spine connects to habit and learning. My eighteen-year practice as an Alexander Technique teacher and extensive experience as a musician and dancer informed my study. Research into the literature about habit and reflex in the late nineteenth through the twentieth century brought to light two radically different discourses, which are contrasted here. F.M. Alexander and John Dewey both understood the interaction of habit and reflex as an opportunity for learning and the empowerment of choice. Behaviorists in experimental and educational psychology redefined habit as automaticity and focused on the external control of behavior.

The primary reflex, also known as startle pattern, is expressed in the fields of interplay both within the self and between the self and the world. The continually shifting mix of habit and creativity that constructs learning and perception is accessible to conscious awareness and direction through working with this reflex. In the interactive learning process in which I participate with my students, movement becomes a dynamic, expressive process rather than either a mechanical goal-oriented function or an habitual phenomenon disengaged from the sense of self.

My intention here is to invite my reader into this process by telling stories, offering analysis and historical context, and juxtaposing writing from Alexander, Dewey and others with my own text. The flow of my text moves along the right facing pages; the quotations, poetry and prose on the left may be read in conjunction with or separately from the text. I chose this form to create a depth of experiential understanding, a field in which to discover interconnections. Of course, the choice and placement of writing reflects my standpoint.

The student stories are fictionalized and constructed from experiences common to many different people and therefore contain no clues as to individual identities. Because of the foundational nature of the process that I work with, a telephone line repair technician could be dealing with the same issues as might, for example, a massage therapist, fire fighter, singer, teacher or car mechanic.

Examiners:

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Introduction

This thesis project evolved through an examination of my teaching practices and their roots in the work of F.M. Alexander, and research into the literature about habit and reflex from the late nineteenth through the twentieth century. John Dewey, the American educator/philosopher, was a long time student of F.M. Alexander and also understood the dynamics of reflex and habit as an opportunity for learning and the empowerment of choice. In Alexander's learning method, which includes the interplay of conscious attention, intention, and complex unconscious processes, habit is seen to be volitional, a kind of learned reflex. Paying attention to oneself and one's relationship to action in a way that allows for continual adaptation makes the interaction between past choices and present experience a creative and energizing process. In experimental and educational psychology, the concept of habit has been redefined by behaviorists as automaticity. The way of understanding learning reflected in this shift is profoundly different from that which is informed by my work. I work with habit through actions that are often treated mechanically and defined as automatic in medical and behaviorist models. By defining habitual and reflexive actions as an expression of the person as a psychophysical whole, I invite my students to discover and develop their capacity for choice and self-direction in movement.

In my teaching practice I work with the primary organizing reflex for movement in the body. The primary reflex is a pattern of reflexive expansion and contraction, action and reaction. It is

expressed in the fields of interplay both within the self and between the self and the world. The continually shifting mix of habit and creativity that constructs learning and perception is accessible to conscious awareness and direction through working with this reflex. In the interactive learning process in which I participate with my students, movement becomes a dynamic, creative, expressive process rather than either a repetitive mechanical goal-oriented function or an habitual phenomenon disengaged from the sense of self.

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The term reflexive in this thesis will always refer to the physiological and movement definition, not the literary one of a

no is where

Yes, they've had their nostrils blocked up with wax, they get home. They've had confusing smells like turpentine put on their beaks, they get home. And just in case that doesn't work, they've had their olfactory nerves severed. . . . Whereas all previous experiments involved moving the pigeons from their home, my experiments involve moving the home from the pigeons.

--Rupert Sheldrake

Woozy, in a world of constant warm,
we sit woolgathering, wings against
our dozy sides. Cubicled in fluorescent summer,
our breathing dims to autumn mould.
Though we don't know the reason,
in our brains, the cherry trees are leaking.

We've never known anything but here:
white sloping chute, white floor,
a legend of a door that leads to starlight.
We sit, are sitting, sat, have sat, will sit.
The white-coated ones watch over us,

show us slides from time to time
of senseless green. We've learned
which dots to peck to get our grain,
which ones clang a shock
throughout our cells. We haven't figured
what they want from us, unless
they're lost and hope for some idea

of how they could get home ---
but we can't think about it. Not
over breakfast. Later, after lunch,
we tell ourselves that if and if and if
the letter comes,
and we are free once more,
we'll stumble over somehow to the door,
folding our hearts in grace

--Peace, 2001, pp. 21,22

reflexive verb or the curriculum one of reflecting back on. In those situations where an educator might use the term reflexive, I will use reflective or self-reflective.

I will begin with the historical context of my teaching practice. Alexander developed his re-education method through his experiments with habit and reflex at a time when the theory of evolution, physiological research and experimentation, and the "new psychology" were influential forces in western science, culture and education theory. His way of working with himself and his students reflected his experience of learning as an interaction between habit, reflex, and choice. It is sharply contrasted here with the behaviorist conception of learning as an accumulation of automatic behaviors developed in reaction to the environment.

Habit and Reflex

Historical Contrasts

My own ideas about habit come primarily from many years of practical work with the Alexander Technique. I studied the technique for four and a half years, and I have been teaching it for eighteen years. Frederick Matthias Alexander was an Australian actor who began his study of habit and reflex in the 1890's. While pursuing a successful career as an actor and touring reciter, Alexander began to lose his voice while performing. Doctors advised him to stop talking, which did improve matters until he went on stage again. The treatment having proved ineffective, he set out to discover what it was that he was doing to cause his hoarseness.

Wundt asserted that man is devoid of spirit and self-determinism. He set out to prove that man is the summation of his experiences, of the stimuli that intrude upon his consciousness and subconsciousness.

--Lionni, 1980, p. 7

The school of Pavlov has made current the idea of conditioned reflexes. Mr. Alexander's work extends and corrects the idea. It proves that there are certain basic, central organic habits and attitudes which condition *every* act we perform, every use we make of ourselves. Hence a conditioned reflex is not just a matter of an arbitrarily established connection, such as that between the sound of a bell and the eating-reaction in a dog, but goes back to central conditions within the organism itself. This discovery corrects the ordinary conception of a conditioned reflex. The latter as usually understood renders an individual a passive puppet to be played upon by external manipulations. The discovery of a central control which conditions all other reactions brings the conditioning factor under conscious direction and enables the individual through his own co-ordinated activities to take possession of his own potentialities. It converts the fact of conditioned reflexes from a principle of external enslavement into a means of vital freedom.

. . . Mr. Alexander created what may be truly called a physiology of the *living* organism.

--Dewey in Alexander's *The Use of the Self*, 1932, pp. xviii-xix, xiv

Through a long process of self-observation and experimentation, he discovered some fundamental things about how humans and other vertebrate creatures balance through their neuromuscular-skeletal systems. He found that reflexive expansion through the spine frees and organises the body for movement. Alexander developed a way of using conscious attention to this primary reflex for movement in order to challenge unconscious postural and movement habits and reeducate the kinaesthetic sense. He began to teach his method to other people with great success, and in 1904 he moved to London, England where his work was highly respected. It was by recognizing that he was functioning as a psychophysical whole even in his unconscious choices that Alexander was able to make such profound changes in his habitual functioning. He insisted that his method was education in the use of the self.

At the turn of the last century Wundt, Pavlov, James, and Dewey were exploring the concept of habit and its instinctive co-relation: reflex. Scientific experimentation in the late nineteenth century was captivated by mechanism. In the early twentieth century psychology as a discipline moved from the field of philosophy into physiology and reactionary scientific methodology (see Lionni, 1980). In 1937, Bernard Shaw wrote a cogent description of the striking contrast between the research methods of Alexander and Pavlov in *London Music* that reflects his perspective from outside of the scientific milieu (see Appendix).

John Dewey's critique of the New Psychologists' stimulus response paradigm--"The reflex arc theory. . . gives us one disjointed part of a process as if it were the whole" (Dewey,

Each lesson was a laboratory experimental demonstration. . . . As one goes on, new areas are opened, new possibilities are seen and then realized; one finds himself continually growing, and realizes that there is an endless process of growth initiated.

From one standpoint, I had an unusual opportunity for making an intellectual study of the technique and its results. I was, from the practical standpoint, an inept, awkward and slow pupil. There were no speedy and seemingly miraculous changes to evoke gratitude emotionally, while they misled me intellectually. I was forced to observe carefully at every step of the process, and to interest myself in the theory of the operations. I did this partly from my previous interest in psychology and philosophy, and partly as a compensation for my practical backwardness. . . . And so I verified in personal experience all that Mr. Alexander says about the unity of the physical and the psychical in the psycho-physical; about our habitually wrong use of ourselves and the part this wrong use plays in generating all kinds of unnecessary tensions and wastes of energy; about the vitiation of our sensory appreciations which form the material of our judgements of ourselves; about the unconditional necessity of inhibition of customary acts, and the tremendous mental difficulty found in not "doing" something as soon as an habitual act is suggested, together with the great change in moral and mental attitude that takes place as proper co-ordinations are established. In re-affirming my conviction of the scientific character of Mr. Alexander's discoveries and technique, I do so then not as one who has experienced a "cure," but as one who has brought whatever intellectual capacity he has to the study of a problem. In the study, I found the things which I had "known"--in the sense of theoretical belief--in philosophy and psychology, changed into vital experiences which gave new meaning to knowledge of them.

--Dewey in Alexander's *The Use of the Self*,
1932, p. xvii-xviii

1896/1972, pp.108,109)--was consistent with Alexander's assertion that actions are a reflection of the functioning of a psychophysical whole. Dewey pointed out that to describe the eye as responding to a light switching on solely in terms of a response to a stimulus ignores the act of seeing and the context and experience of the seer.

> We ought to be able to see that the ordinary conception of the reflex arc theory, instead of being a case of plain science, is a survival of the metaphysical dualism, first formulated by Plato, according to which the sensation is an ambiguous dweller on the border land of soul and body, the idea (or central process) is purely psychical, and the act (or movement) purely physical. (Dewey, 1896/1972, p. 104)

I was not surprised to find compatibility between the work of Dewey and Alexander, as Dewey studied with Alexander from 1917 onwards and wrote prefaces to three of his books. The experience of Alexander work is clearly reflected in Dewey's writing about habit. According to Maisel, Dewey "himself had undergone an extraordinary rejuvenation after embarking upon 'the work' at the age of fifty-eight, and continued to practice to the end of his life. Dewey lived to a fit ninety-three, and his vital longevity he always attributed to his Alexander training" (Maisel, 1986, p. x).

From 1914 until the end of World War I, Alexander lived and taught in New York, and he continued teaching there regularly from November through April up until 1924. His lessons were much in demand, and people from all walks of life, including scientists, doctors and educators, studied with him. It is amazing to me that though Alexander was well known and influential in his lifetime, there is relatively little awareness today in North America of the

[The Alexander treatment stresses] the importance for medical science of open-minded observation--of "watching and wondering." This basic scientific method is still too often looked down on by those blinded by the glamour of apparatus, by the prestige of tests, and by the temptation to turn to drugs.

--Tinbergen, 1974, p.4

significance of his work. Perhaps it is because he was primarily a teacher, and refused to have his work co-opted by the "new psychology" juggernaut in the early twentieth century. Maisel wrote about Alexander's resistance to the research community:

> Dewey, after trying repeatedly to bring him into fruitful connection with the world of foundations and university research, finally gave up... Alexander turned thumbs down hard on the inception of a research project at Harvard Medical School... For he distrusted not science, but scientists. He knew what he had: but he knew not what it might become at their hands. He likewise sabotaged a research grant from the Rochefeller Foundation which influential friends sought for "the work." (Maisel, 1986, p. xiii)

Dewey understood that the process of psychophysical reeducation that Alexander developed demanded an experiential understanding. The presumption of neutrality or objectivity in the research paradigms of that era did not take into account the perceptive bias that arises from the psychophysical habits of the researcher. In the experimental process that Alexander engaged in, goal-oriented procedures leading to predictable outcomes were contrary to the methodology.

As I researched my way through the twentieth century, stopping in at the laboratories of Watson, Hull and Skinner, I found that behaviorism began to dominate psychology journal references. Most disturbing was the metamorphosis of the concept of habit from its rich interdisciplinary qualitative roots to reactive automaticity in experimental psychology research. Historically the concept of habit was defined by a large range of experiences

As might be anticipated, the conclusions of Mr. Alexander's experimental inquiries are in harmony with what physiologists know about the muscular and nervous structure. But they give a new significance to the knowledge; indeed, they make evident what knowledge itself really is. The anatomist may 'know' the exact function of each muscle, and conversely know what muscles come into play in the execution of any specified act. But if he is himself unable to co-ordinate all the muscular structures involved in, say, sitting down or in rising from a sitting position in a way which achieves the optimum and efficient performance of that act; if, in other words, he misuses himself in what he does, how can he be said to know in the full and vital sense of that word?

--Dewey in Alexander, 1932, p. xv

In other words, because of social psychology's natural [sic] focus on the situational determinants of thinking, feeling, and doing, it is inevitable that social psychological phenomena will be found to be automatic in nature.

--Bargh, 1997, p.1

"Knowing how to do something" is an internal surrogate of behavior in its relation to contingencies. A child learns to ride a bicycle and is then said to possess knowledge of how to ride. The child's behavior has been changed by the contingencies of reinforcement maintained by bicycles; the child has not taken possession of the contingencies. . . . We respond to different things in different ways. But that is all. The whole field of the processing of information can be reformulated as changes in the control exerted by stimuli.

--Skinner, 1978, pp. 107,108

including learned, cultivated and automatic behaviors. There were personal moral habits, habits as spiritual discipline or practice, habits as rituals for the reinforcement of values, social habits as manners (a means of social interaction), habits as a metaphor for natural phenomena and vice versa, and the nun's habit--something you wear to demonstrate your beliefs and commitment. From the 1940's through to the present, research into habit has become dominated by study of the manipulation of reactions to stimuli. To define a person as a reacting machine and unconscious processes as automatic is to deny our capacity for choice and creativity. It is a redefinition of what it is to exist as a self.

The impression of the behaviorist/experimental psychology mindset that so influenced public education and popular culture has not been as overwhelming in other fields such as philosophy, literature, and the arts. Since the reconceptualization of the curriculum field in the 1970's, and with the broad influence of post-modernism and ecocentric philosophies, learning theory is now less bounded by the culture of predictability and control. Alexander's method of focusing attention on the "means where-by" (process) as a way of acting creatively in the moment is current in the environment of contemporary educational philosophy.

In my practice I work with habit and learning through everyday actions. The structural foundation of movement organization and support in the body is the spine. There is a reflexive pattern of contraction and expansion through the spine which I call the "primary reflex." By learning to attend to this pattern, people can profoundly change their habitual ways of moving and functioning.

Automaticity is a construct that can be likened to the concept of the reflex. . . . Although we like to think of reflexes as automatic, they can, as Logan argues, be easily modified by context and through attention. . . . it seems relevent to ask whether the brain respects the distinctions sometimes made between executive (self-regulation) and automatic (data-processing) systems. By "self- regulation," we mean here the control over reactivity that can be exercised through selective attention. Attention as we understand it is an integrated cognitive system with its own anatomical base, although the neural systems subserving selective attention are not fully known.

--Posner & Rothbart, 1999, pp. 455, 457,458

Unduly excited fear reflexes, uncontrolled emotions, prejudices and fixed habits, are retarding factors in human development.

--Alexander, 1923, p. 207

Through my research I began to realize that not only was my way of understanding and working with reflex quite different from that of the behaviorists, but also that the primary reflex is informative about the interplay of habit and creativity in the learning process. I work with reflex as an opportunity for choice, as a doorway out of habitual constructs. Attention to the reflexive contraction and expansion in the spine reveals our relationship to our habits, ideas, actions and experiences.

For the purposes of my teaching practice, I have ways of describing this primary reflexive pattern, which is also known as stress response or startle pattern. These descriptions are meant to evoke experiences, and contextualize them in nature and everyday life in order to demonstrate the significance of this reflex. One version of a lecture I might give on this topic follows.

The *Primary Reflex*

In all vertebrate creatures (creatures with a spine), there is a reflexive pattern in the body that organizes movement and balance. There is a reflex point--or trigger for movement--where the head meets the top of the spine, high up in between your ears. A common experience of reflex action occurs in a visit to the doctor: when a doctor taps your knee, your leg kicks out. The head/spine reflex leads the spine to contract or expand, and generally coordinates the movement of the body. Have you ever ridden a horse, or seen one ridden? When the rider asks the horse to go somewhere, s/he turns the horse's head in that direction and the

horse follows its head. (A good rider also looks where s/he's going.) In simple terms: the head leads and the body follows.

In four legged animals that's pretty obvious, because the head is at the front and the spine trails behind. A cat's head not only gets there first, but it also leads the spine to move and balance. Four-legged creatures organize internally--through the length of the spine--in the same direction that they move through space. Two-legged creatures balance by lengthening through the spine and outwards through the top of the head, but move forward through space perpendicularly to the spine. In other words, to walk we lengthen upwards but move forwards. This seems to create some confusion, particularly when we forget to pay attention to what we're doing in the rush to get where we're going. We tend to shape our movement in response to where and how we focus our attention. Picture somebody running for the bus, face pushed forward, neck tight, trying hard to get there faster, relying entirely on unconscious habits of locomotion. Their whole intent is focused on the idea of forward, yet the body moves most effectively when lengthening upwards through the core. (I call the head, spine and pelvis the core of the body.)

Another way of talking about the reflexive pattern in the head/spine relationship is to talk about its most dramatic expression: startle pattern or the fright/fight/flight response. We are designed to react to anything--surprise, fear, excitement, "oh no, I forgot to . . .," "I'm late for. . .," walking onto a stage, just about anything--with a reflexive tightening that starts in the head/spine connection and extends through the whole body. Yet we are

It is highly unlikely that in their very long evolutionary history of walking upright, the hominids have not had time to evolve the correct mechanisms for bipedal locomotion. This conclusion receives support from the surprising, but indubitable fact that even after 40 to 50 years of obvious misuse one's body can (one might say) snap back into proper, and in many respects more healthy, use as a result of a short series of half-hourly sessions. Proper stance and movement are obviously genetically old, environment-resistant behaviors. Misuse, with all its psychosomatic, or rather somatopsychic, consequences must therefore be considered a result of modern living conditions of a culturally determined stress.

--Tinbergen,1974, pp.3,4

designed to release the head/spine connection and expand outwards through the core of the body and from the core through the arms and legs in order to take action. I am describing an inborn survival mechanism that is very effective in the woods or the jungle, but not always helpful in many complex human cultural contexts. So first let's take a look at how the pattern works for you in the wild.

Imagine that you are enjoying walking through the woods alone. It's a beautiful day, the sun is filtering through the trees, and you are feeling your footfalls cushioned by the forest floor. The only sounds you hear are birds singing and the soft brush of ferns and salal against your legs as you move along a narrow path. About 10 yards away, you suddenly see a huge GRIZZLY BEAR! (At this point in the story I shock you with an ear-splitting YELL.) What is your response? It's likely that your head has been pulled down and back, your shoulders are tightening up toward your ears, and you have stopped breathing. Perhaps this feeling is familiar from other startling experiences you have had. This is a protective reflexive response pattern that is common to all vertebrate creatures. I'll describe what's happening practically and physiologically, so that you can understand the value of this reflex.

In the instant that you see the grizzly bear, your body releases a flood of adrenalin. The adrenalin gives you a huge shot of energy to deal with the emergency, but it also panics your whole system. It makes you want to leap in the air and scream. This is not a good survival choice, however, as the bear may not have seen you yet, and will simply be alerted to the fact that you are in her way. So we

have a reflex to clamp down, which does many useful things. First, the head is pulled back and down into the spine, the body compresses through the core, and the arms and legs contract into the core. This immobilizes you, as it's very difficult to move when all your muscle energy is tightening inwards. The compression through the spine presses on your heart and slows your heart which is racing because of the adrenalin. It also takes your breath away so you can't scream, makes your breathing shallow and less visible to the bear, and takes oxygen out of your system to calm you down. The muscles that connect the head to the neck and shoulders bunch up to pull your head down, but also to protect your neck, which is the most vulnerable part of your body. Predators always go for the neck, because if they chomp you there, you're finished. All this is useful in the short term--for three or maybe even ten seconds--during which time you think about what to do. Should you stay put, creep away slowly, or yell and jump on the grizzly to fight for your life?

The creative process of choosing your best course of action from the complex field of possibilities is made possible by this brief contraction pattern. Once you decide what to do, your head is triggered to release away from the top of the spine, leading the spine to expand and open; your heart can race; your lungs fill up; your neck and shoulders relax; and your arms and legs are freed from the core. Then if you were four-legged, you would follow your head to run away. As you are two-legged, your head continues to lengthen your spine and free your body as you move through space, the extreme adrenalin rush of a life threatening emergency having

Finally, the fact that certain processes or parts of processes can become so overlearned as to proceed without monitoring under certain circumstances is not taken as a model for all of cognition, nor as evidence that such is the fundamental nature of thought.

--Isen & Diamond, 1999, p. 147

overridden your less effective habit of leading yourself around by the chin, nose or eyeballs.

This deep pattern of contraction and expansion (reaction and action) underlies much of our functioning in the world. It is not only grizzly bears or wolf spiders that trigger reflexive tightening-- a bus roaring by, pressure to get something done, the moment of remembering something you forgot to do, a demand for attention... We are designed quite simply to react by tightening, but then to act by releasing through the core and from the core. Because human life and culture are very complex, we often learn ways of moving and balancing ourselves that contain a certain amount of unnecessary reflexive contracting. These actions become unconscious habits which shape our movement and perceptual functioning.

Reflex in the Learning Process

One of my favourite examples of the interaction of the startle reflex with habit and learning is the story of how a friend of mine learned to type. He was in a high school typing class with a mean teacher who gave his students "sudden death tests." In other words, you type a page for a timed test and at the end of the time the first mistake you made equals your mark. So if the whole page is perfect except the fifth word, you are marked as if everything is wrong after the fifth word! Needless to say, my friend found the process of learning to type very stressful. To this day twenty-five years later, as he reaches for the computer keyboard to start typing, he tightens his head, neck and shoulders.

So it may well be that there is no future role for conscious processing in accounts of the mind, in the sense of free will and choice. . . . But there is another quality to what we call conscious processes that is unlikely ever to be shown to be unnecessary, and that is its serial and inhibitory nature. The difficulty is that the mind is exquisitely capable of moving around in time, and of doing many things at once, but the body cannot. The purpose of consciousness, therefore, may be to connect a parallel mind to a serial world.

--Bargh, 1997, pp. 52,53

Between our two hands lies the fate of a masterpiece, its life or its death. We do not play with our soul, we play with our fingers. . . . Are not our ten fingers like ten instrumentalists obedient to a single conductor, ten creatures who should answer instantly to his call?
Fingers are inattentive and allow themselves many irreverences as soon as they are not under surveillance. But a sharp command from the brain brings them back to order. [Fingering] also depends on the degree of sensitivity of the tip of the fingers and the rapport of this sensitivity with the organism as a whole. For many years I played *[The Italian Concerto]* all over the world. . . . It became a little worn in the process; dust settled on it in addition to a few bad habits contracted during all these travels. We had become an old *menage.* Its beauty, its contrasts had lost all their sharpness. But I had to teach it to a student, and suddenly the work woke up and showed itself under a new and exciting light.

--Landowska, 1965, p.371-373

Reflex and Action

Here is an example from music performance that is easy to spot if you know what you are looking for. Watch a pianist begin a scary or subito piano passage and you will often notice a preparatory startle response that carries over into the playing. The pianist will contract her/his head down into the spine (face toward the keys) and crouch the upper body. This is the reaction part of startle pattern, and it makes sense in terms of the pianist's response to the musical idea. However it is actually misplaced in this situation. The role of the pianist is to *generate* surprise or fear, not to experience it. In a predator/prey scenario, the pianist is the cougar, not the rabbit. The contraction of reaction actually makes it harder to play, which may explain why so many pianists complain of difficulty in playing pianissimo. There are two incompatible directions operating at the same time. The tightening means stop, don't move, and the intention to play demands action. The efforting required to overcome that complexity is far more demanding and difficult to control than the relaxed focused playing that can produce a pianissimo dynamic simply.

Working with Reflex

Conscious Attention to Unconscious Processes

The primary reflex is engaged in all of our actions, and it engages our whole self. It shapes the ways that we express ourselves physically and its expression reflects both our present and habitual frames of mind. In the previous scenarios, the primary

The union of past and future with the present manifest in every awareness of meanings is a mystery only when consciousness is gratuitously divided from nature, and when nature is denied temporal and historic quality. When consciousness is connected with nature, the mystery becomes a luminous revelation of the operative interpenetration in nature of the efficient and fulfilling.

--Dewey, 1929/1981, p. 265

reflex could be seen as functioning on an instinctive or habitual level. When Alexander found that his habits were interfering with his ability to perform, he looked for a way of controlling his habitual reactions. Through the process of experimentation he found that conscious muscular efforting just tightened the noose of contraction in the head and neck. He eventually discovered a way of using conscious attention to allow reflexive release to shape his movement. The insight that he was functioning as a psychophysical whole in all his actions--habitual and instinctive, conscious and unconscious--was key.

The Alexander Technique and Directing Conscious Attention

My introduction to the Alexander Technique came through a musician friend who went to study in England for the summer. She returned with a pamphlet and enthusiastic stories about the way an Alexander Technique teacher had helped her to eliminate the tension and pain in her shoulder. Though I was not experiencing any injury or pain from my cello playing, there was something about the way of working she described that appealed to me. I was what some people call a natural cellist. As long as I focused on the music I was able to play quite difficult repertoire, but when I tried to practice technique out of context I was frustrated. The ideas I heard about how to work the fingers, strenghthen muscles, and develop an objective understanding of the process of playing had no resonance for me. The musical intention organised my body, and I could only glance peripherally at the rest of the process without

feeling that I would lose the relationship with my cello that I valued.

The Alexander Technique was presented as a way of working with the self that allowed complex intuitive processes to be understood and supported consciously. The idea of not efforting, but working with a natural process of balance and coordination to fulfill my intentions seemed to have possibilities. The concept of developing control through direction rather than force made sense. The next year I found out that my teacher at the Banff School of Fine Arts, Claude Kenneson, had studied the Alexander Technique for many years. His teaching methods reflected that understanding, and working with him for two summers was so helpful to me that I spent a year studying with him in Edmonton.

I remember one of my first performances at the Banff School with a cello quartet. In the middle of playing, my bow started shaking. This had never happened to me before, and I was quite shocked but managed to muddle through. I talked to Claude about it afterwards with great trepidation, fearing that this was some mysterious affliction and having no idea how to overcome it. His advise was to just *let* my bow shake. Trying to hold on to stop the shaking would only increase it. The thing to do was to simply sing the music in my mind and focus all my attention on the phrase and on listening to the sound. At the next performance my bow started to shake again. I had a few moments of panic, during which I imagined myself getting up and running off stage crying! After a while I realized that I was still sitting there playing and decided

that I would not run off stage, so I tried Claude's suggestion. My bow stopped shaking almost immediately.

That experience of choosing not to run off stage was significant for me in many ways. The heightened awareness in which I observed myself while continuing to play and chose to redirect my attention to good effect is now familiar territory. There was a moment of realizing that I could trust myself, that my conscious mind and the rest of who I am are integrated and available in the presence of awareness. In the year I spent in Edmonton I began to learn how to practice, and to get an inkling of a kind of experimental relationship with my instrument that included my musicality and invited an awareness of physicality. I also was able to prepare and perform two full solo recitals.

Now, when as an Alexander Technique teacher I am asked to explain the process of working with the technique in everyday life, I often say that one uses conscious attention to focus on complex unconscious processes. For example in movement terms, to try to control each muscle involved in an action would be a ludicrous project--like chasing your tail through a maze. There is a perfectly well-designed system within us that organizes balance and movement. The neuromuscular-skeletal system is controlled at the same level of function as your heartbeat and digestion. In the Western European tradition, we are not taught that it is necessary to control our heartbeats, but we do have all sorts of ideas about how to work muscles to support movement. Everybody can demonstrate a well learned version of correct posture, but hardly

We should also note the immoderate taste of modern thought for this reactive aspect of forces. We always think we understand the organism on the basis of its reactive forces.

. . . The great principal activity is unconscious. Consciousness merely expresses the relation of certain reactive forces to the active forces that dominate them. Consciousness is essentially reactive, and this is why we do not know what a body can do, or what activity it is capable of. And what we say of consciousness we must also say of memory and habit. What happens is that science follows the paths of consciousness and relies entirely on *other* reactive forces, the results being that the organism is always seen from the petty side, from the side of its reactions.

--Deleuze, 1985, p. 81,82

Metaphors are more useful than logic in generating this dialogue. Metaphors *are* generative; they *help us see what we don't see.* Metaphors are open, heuristic, dialog-engendering. Logic is definitional; it *helps us see more clearly what we already see.* It aims for closure, for exclusion. In Serres' words, 'it kills.' We need, of course, both creative imagination and logical definition. We need generation and closure. Life is birth and death; and so, Whitehead said is reality. It is through the interplay of metaphor and logic that life is lived, experienced, developed. As teachers, we need to bring this interplay into our curriculum constructions.

--Doll, 1993, p.169

anyone wants to stay in that position for long. Try it; sit up straight. What do you want to do next?

Once we realize that the whole body is engaged in any action, then the question is: how do we communicate with that complex whole without interfering with its integrity, or overriding its balanced interconnections? Metaphors are a useful means of focusing conscious attention on reflexive release. A metaphor can act as a suggestion that inspires new dynamics in the interplay of thought and action. In my cello performance experience, I used singing the music in my mind as an organizing metaphor for the acts of creating it. This allowed the intentional and unconscious elements of self to work together fluently to generate the act of playing.

Metaphors

In action, focusing on metaphors for reflexive release in the body allows for a continual transformation of the structural patterning of movement and balance. When F.M. Alexander first began teaching, his basic tool was the concept of inhibition. He found that if he refused to act on his initial habitual impulse--which was triggered by the goal he had in mind--and waited, he would experience a different flow of organisation of movement in his actions. As he developed his teaching repertoire, he included verbal cues that were consistent with the primary reflexive pattern as a focus of attention, and hands-on guidance to give feedback to the kinaesthetic sense. Through these methods, students came to

Psychology as the behaviorist views it is a purely objective experimental branch of natural science. Its theoretical goal is the prediction and control of behavior. Introspection forms no essential part of its methods.

--Watson, 1913, p. 158

This process of directing energy out of familiar into new and unfamiliar paths, as a means of changing the manner of reacting to stimuli, implies of necessity an ever-increasing ability on the part of both teacher and pupil to "pass from the known into the unknown;" it is therefore a process which is true to the principle involved in all human growth and development.

--Alexander, 1932, p. 87

associate verbal cues with kinaesthetic experience. He used language as a metaphor for experience.

In my teaching I have found that metaphors can represent a complex psychophysical experience without triggering conscious efforting. I experiment with my students to discover the kinds of metaphors that are meaningful and useful to each student. I describe this process as finding the ways in which you communicate with yourself, and how you conceive of yourself both internally and in relation to the world. The usefulness of a metaphor is gauged by the reflexive response in the body. My training and experience with interpreting through the kinaesthetic sense allows me to feel the balance and flow of movement in my student's system. If an idea produces contraction/reaction, then it is not a useful idea to organize action. One of the great creative pleasures in my practice is discovering the innumerable interesting ways that people pay attention to themselves and their environment.

People imagine and connect to the world through all five senses plus the kinaesthetic, and more. Qualitative descriptions are generally open-ended and allow for a richly creative response. Concepts such as lightness, ease and buoyancy suggest qualities of experience without specifying a particular set of muscle efforts. But then sometimes the simplicity of a clear association with a mechanical action allows a person to let the clarity of reflexive release move her/him. For example, imagine that your spine is like a big spring, and your head is like a ball resting on top of it. When you tighten your neck and shoulder muscles it is as if the ball is pressing down and compressing the spring. Decide not to hold those

muscles and you will notice that the spring (spine) decompresses and the head (ball) is propelled up and away.

Verbal language is often used to construct a metaphor. (Example: Does a tiger have to hold its stomach in to walk? Why should you?) An external focus of attention can reflect back an internal metaphor of relationship that is not expressed in words. (Look at something across the room, then mentally measure the space between you and that object. Situate yourself and the object within the larger space that includes both of you.) Here are some examples of metaphors for reflexive release. You may try these at home, but you may not want to try them all at one sitting.

Imagine that there is a column of light shining from the base of your spine and flowing out the top of your head. As you tip forward from your hips, the light moves along the ceiling like a search light. Did you look up? Oh, well try this. Put an extra set of eyes on top of your head so you can look out from there as you move. Better yet, try growing antlers: feel them extending, sense their weight and perfect balance, and look around to show them off.

After you read this, close your eyes and imagine the space inside your head. . . Or collapse your head back and down on your spine and have a good slouch. Now imagine that your head is a hot air balloon, and let each exhalation fill it with more hot air; allow it to float up and let your spine follow. Don't forget the basket (pelvis).

We are actually hanging from the floor. Think about it: we are hanging off the planet outwards. It's only the attraction of earth's gravity to our own (two internally balanced systems) that keeps us from flying off into space.

Put your fingers in your ears and imagine a line through your head connecting them. Now put one finger on the bridge of your nose, and with the other hand touch the back of your head at the round bump on the same level. Imagine another line between those two points. Where those two lines intersect, the X inside your head, is where your head pivots on top of the spine.

Your head and spine are like an engine and a bunch of rail cars. The engine provides the energy that gets the cars moving (through the release of the head at the head/spine reflex). As the cars (vertebrae) follow, the space between them opens up. Once the cars are moving, they provide momentum that actually pushes the engine (the spine supports the head).

One of my university students, a bassoon player, would tighten her shoulders and neck in anticipation of the technically difficult passages in her music. This coincided with the loss of breath support. Relaxing the pelvic floor and thinking of the pelvis as a three dimensional base triggered reflexive expansion and freed her. Her way of doing this was to think: "whole wheat pancakes for breakfast--with blueberries and maple syrup if necessary."

In my practice, it is not my intention to teach a series of exercises, but rather a way of paying attention to oneself that is applicable to any activity. A carpenter took about eight lessons from me to deal with low back pain. We did very practical experiments which included simple movement sequences used as a context for understanding the organisation of the spine and finding balance from hinging at the hips, knees and ankles. I met him by chance at a store a few years later. He said: "Since I studied with you I've never had trouble with my back again. If I ever start to feel discomfort, I just do those exercises you showed me and I'm fine." I had a moment's pause, and then I thought--great! My Alexander Technique teacher self imagines that those exercises serve as a metaphor to connect his awareness to his core pattern of physical organization and support.

Habit as Resource or Impediment

A Metaphor for Habit

Alexander's technique is based in the practical kinaesthetic realities of everyday life activities. From that perspective I see habit as an expression of past experiences and choices. When our habits of movement do not support our present needs, metaphors can be a useful way of re-directing energy out of habitual patterns into more interesting and enlivening courses of action. It is often the case that habits are addressed only when they become a problem, but it helps the learning process to take a friendly attitude toward them. Habits reflect our experience and creative choices;

Someone has said, in referring to the monotony of the environment in which the human creature lives and moves, that monotony is the deathbed of existence. But what of the monotony *within* the human creature's psychophysical self, a monotony caused by the gradual cessations of those sensations concerned with new experiences which have accompanied growth and mobility in the organism since birth?

--Alexander, 1923, p. 309

they are the best way we have come up with, so far, to get what we want. In that light, habits can be viewed as both a resource and an impediment.

Weiner writes about Merleau-Ponty's conceptions of habit as sedimentation and of inhabiting as the "interplay of sedimentation and spontaneity" (pp.344,345). Habit as sedimentation suggests both the possibilities of stagnation and richness. I use the metaphor of the life of a river to explore the idea of learning as an interplay between habit and creativity. Like the silt that an overflowing river spreads over the surrounding farmlands in the spring floods, the sedimentation of history and acquired skills offers a rich resource from which we can draw energy for our present capacity and new growth. Too much accumulated debris can settle in and stop the flow of energy in the mind and body just as it dams the flow of a waterway. When the collected wealth of a river's course sits at the bottom of an estuary for years, layer upon layer, it chokes the sea life, as habit stifles the creativity that inspires growth. It can take a tsunami or a flood to get things moving again.

Movement and interaction shape life. Predictability relies on accumulated knowledge (sedimentation); creativity carries us into the unknown (spontaneity). When the drive for stability and control dominates the process of living, the environment of experience is degraded.

The Development of Habit

For several years I took courses on a university campus that was relatively new. There were lots of trees and grassy areas in between the buildings and not many pathways. When going from one building to another I, like many other students, would skip the concrete route and wend my way diagonally through the shade of the trees, enjoying the nice soft feel of the grass under my feet. These routes were often faster than the grid-like ones provided. Over time, I noticed that these short-cuts were becoming well used. A narrow dirt track would appear, then widen, and pretty soon the ground was hard and the grass didn't grow there anymore. Then all of a sudden one day I'd be walking along and find that the path had been cemented over, and the trees pruned back.

The lovely walk I used to enjoy, that contained so much pleasure and interest, became a means to an end. It was so disappointing in its efficiency. Our habits are like this. As we discover new ideas or skills, we are engaged in a process--of learning. There are all kinds of practical, creative and aesthetic values in our experience. Once we concrete the results into habit, the liveliness is gone.

I teach grown-ups how to walk. Or you could say that we experiment with paying attention to how we walk. We usually have fun, and I am very supportive and encouraging to my students as they discover unfamiliarity with a skill they have taken for granted for years. They will often say: "Gee, nobody (including me) has gotten excited about my ability to walk since I was about one and a half years old!" The interesting question is, why not? It is true that

Sideways learning aims at maintaining a mindful state. As we saw, the concept of mindfulness revolves around certain psychological states that are really different versions of the same thing: (1) openness to novelty; (2) alertness to distinction; (3) sensitivity to different contexts; (4) implicit, if not explicit, awareness of multiple perspectives; and (5) orientation in the present. Each leads to the others and back to itself. Learning a subject or skill with an openness to novelty and actively noticing differences, contexts, and perspectives--sideways learning--makes us receptive to changes in an ongoing situation. In such a state of mind, basic skills and information guide our behavior in the present, rather than run it like a computer program.

--Langer, 1997, p. 23

we rely on our daily life habits to get us where we're going, but all actions have qualities beyond their bare utility. If our accumulated skills stagnate at the bottom of the unconscious, they no longer support healthy growth.

Paying Attention to the Process

The Primary Reflex Structures Process; Goal-orientedness Activates Habitual Reactions

When Alexander found that all his efforts to change his habits were going nowhere, he gave up trying. This allowed for an insight that opened the door to a new way of learning. He realized that by trying to do something to correct his problem, he was layering new conscious effort on top of existing unconscious habitual tensions. Realizing that these layers of action--conscious and unconscious--were expressions of his own intent, he decided to intend not to do anything, then pay attention. From this perspective of interested detachment, he noticed that the moment he decided to do something he contracted in his head, neck and back; and that when he didn't proceed, there was a corresponding expansion and release. Inhibition, as the choice not to react habitually, allowed the possibility of discovering a different way of moving. He then found that by focusing his conscious attention and intention on the reflexive lengthening of his spine as he moved, he was able to act without activating his habitual efforting (see Alexander, 1932). Habitual effort and the primary reflex are intertwined in action.

A fair interpretation of these pregnant sentences is that as long as objects are viewed telically, as long as the objects of the truest knowledge, the most real forms of being, are thought of as ends, science does not advance. Objects are possessed and appreciated, but they are not *known*. To know, means that men have become willing to turn away from precious possessions; willing to let drop what they own, however precious, in behalf of a grasp of objects which they do not as yet own. Multiplied and secure ends depend upon letting go existent ends, reducing them to indicative and implying means.

–Dewey, 1929/1981, p. 107

The moment of choosing to act is full of potential for the expression of reflex, habit and creativity. For instance, in the moment of choice when you decide to walk across the room, the reflexive release in the head and spine is triggered. This directs an expansive flow of movement throughout the body to organize and support walking. Immediately after this, if you are mostly concerned with getting there (*the goal*), habitual patterns are activated. Whatever it is that you usually do to get there is likely to be repeated. If you pay attention to how you get there (*the process* --the simple reflexive organization of movement and balance), you may well have a new experience on your way.

Alexander, an actor, used the terminology of the theatre to describe the process of paying attention and focusing intention without efforting. He called it directing. The analogy of a theatre director is very useful here. A good director will not try to prescribe every action in precise detail to the actors: breathe six times between speeches, take steps 18.2 inches long, imitate these vocal inflections exactly, express grief with your facial muscles just so, and so on. The director will offer suggestions as to the content, interaction of characters, overall action (blocking), intention, and tone of expression, then monitor the performance and make suggestions that will inspire and refine the creative process. In a similar way we can direct ourselves: suggest, observe and then direct again. Walking across the room can be experienced as an interesting and creative act if we pay attention to the process instead of focusing on the outcome.

A Teaching Game

After spending most of a new group class session re-directing standing and sitting and walking around with my students, I will often play a game to demonstrate the force of habit and the power of interrupting habitual reactions (Alexander's 'inhibition'). At first the students stand and sit with hands-on guidance while they focus attention on simple concepts of lengthening through the spine to move up and away from the floor, releasing the knees forward to allow the legs to bend, and hinging from the hips. When they have all had interesting experiences of greater ease and poise through directing conscious attention to the process of sitting, I suggest that we play musical chairs.

Most adult students will not have played this game since childhood, so the novelty brings up the energy level in the room. In reminding them of the rules, I emphasize the competitive aspect of the game. I admonish them to forget all about the Alexander ideas we just worked with and "remember to get your bum on a chair when the music stops, or you lose and you don't get to play anymore." Then I sing a song, or play a suspenseful, fumbling rendition of *Fur Elise* if there's a piano handy, and then I stop. A wild, goal-oriented melee ensues, with everyone throwing themselves down onto chairs and each other and laughing. Then they get serious again as the game continues, minus a chair. (I take the losers into my confidence and suggest that they watch the others efforting.) We do this for a couple of rounds, then I ask them to say what they noticed about how they got to a chair. Most people

Thus physics was unwittingly infected by importation [from classical metaphysics] of an uncriticized ethic of customary and fixed ends, and of a dialectically ordered hierarchy of fixed means.

"This," whatever *this* may be, always implies a system of meanings focused at a point of stress, uncertainty, and need of regulation. It sums up history, and at the same time opens a new page. . . . Every perception, or awareness, marks a "this," and every "this" being a consummation involves retention, and hence contains the capacity of remembering [habit]. Every "this" is transitive, momentarily (in the moment and inevitably?) becoming a "that." In its movement it is, therefore, conditioning of what is to come; it presents the potentiality of foresight and prediction.

--Dewey, 1929/1981, p. 264,265

report that they had no thought of the process, but were completely focused on sitting down on a chair. They were aware of a great deal of tension and efforting, not just when the music stopped, but also during the anticipatory walk around the chairs.

Next I change the rules. I ask everyone when the music stops to say: "NO, I will not sit down." I ask them to practice saying this, as I notice that people are sometimes reluctant to declare a forceful NO out loud. The NO represents saying no to the habitual reaction to the idea of sitting down. This clears a bit of space for paying attention to how you balance as you move. I remind them of the directions of release and extension through the body that worked for them earlier, then we play again. This time when I stop making noise, there is a moment of mass confusion as people catch themselves trying to sit down and then remember to say NO and think about *how* to get into the chair.

This experience makes clear how strong the impulse is to act habitually when you are primarily interested in the goal. It also gives some sense of the freedom from stress and constriction that results from interrupting goal-orientedness to discover new ways of moving. Here, my reader might say: "But if your survival depends on getting your buttocks on the chair first, isn't it best to just do it and go to the chiropractor later if you need to?" You have a point. But if every time you sit down you treat the process as a reactive emergency, even daily visits to the chiropractor won't help you. Eventually sitting down and standing up will become a tiresome chore. By developing the ability to bring an awareness of reflexive release into your actions, you will be more effective in channeling

When water is poured upon the ground, it forms a channel for itself. Its initial direction may have been determined by the merest accident; but, once determined, it is adhered to, and the more certainly the oftener we pour. When a machine is set in motion, there is always the same resistance of mass to be overcome in its various parts; but friction is lessened by the wearing smooth of part against part: so that a machine which has been going for some time usually runs more easily than a new one. . . . Now there is good evidence for the view that the same thing holds of neural processes. . . . What we call 'practice' consists simply in changes of this sort.

. . . Practice always implies that an action which at first was performed voluntarily has gradually become reflex and automatic. Thus when a child learns to walk, the taking of each single step is accompanied by a considerable effort of will; but after a time and by slow degrees it becomes able to initiate a whole series of movements without attending to their execution in detail. In the same way we learn to play the pianoforte or to execute some other complicated movement of the hands by frequent repetition of particular and connected acts, and their consequent transformation into a chain of effects which follow each other with mechanical certainty when once the appropriate impulse has been given.

--Wundt, 1894/1997, pp. 144, 227

your energy in a real emergency, have a choice about how to act, and be less likely to injure yourself by holding unnecessary internal countertensions.

Making Pots

Joan, a professional ceramic artist, came for lessons to help her cope with muscle pain and fatigue in her arms and shoulders. She had been doing a lot of production work, making large quantities of tableware for the summer tourist season. When I meet new students, I often ask them to describe the activities that are causing them difficulty. I pay attention not only to what they are saying but also to how they are expressing themselves physically. In Joan's case, I particularly noticed her tightening her arms as she described working the clay, and hunching in the upper back and shoulders as she described bending over the potter's wheel to stabilize and shape large pieces.

As she worked tired and under the pressure of deadlines, the amount of efforting she believed to be necessary to work the clay was becoming unsupportable. There is a sort of loop between stress response and the fight to overcome the limitations that result from it. There is a layering of reacting to reacting and efforting to overcome tightening. Because of our adaptability, when we exert a certain amount of force we tend to identify that force as necessary for the activity. When Joan learned to release the tension in her neck and spine and to let her elbows give in response to the

We all know that every form of art depends on movement and flow. But while this movement and flow can be retained forever in a painting or in the written word, it can never be captured in music. Music is the only art form which is a perpetual "fluid flow." And this is the first problem we face when we play an instrument. Because to realize this "fluid flow" on an instrument which feels hard to the touch is very difficult indeed, even in the best of circumstances. For the hard texture of the instrument tends to create a static (if not equally hard) response in the hands. This static response causes tensions, and tensions create anxiety. . . . And no wonder when all our activities, no matter how ordinary, in fact our very existence, depend on an interrelated and harmonious mobility which transmits energy. In a human being, this transmission of energy release is always an "inside-outward process."

--Havas, 1995, pp.15,16

resistance of the clay, she was able to use the balance and momentum of her whole body instead of isolating the effort in her arms.

The musculature that connects the shoulders to the neck and head are not meant to do the work of lifting and moving the arms. They tighten in the reaction of stress response to disengage the arms. The arms are connected to the centre of the body through a complex layering of muscles, and these muscles provide the control and power for arm movements. The shoulder blades rest on the rib cage (the ribs are connected to the spine) so the position of the shoulders reflects the shape of the spine. Pulling her head forward and down into her work caused Joan's back to hunch and her shoulders to ride up, which triggered the muscles that tighten in reaction. Freeing her head/spine reflex, allowing her head to pivot at the top of the spine without pulling down, and hinging from the hips created a new balance that allowed Joan's shoulders to remain relaxed as she worked.

When the tensions of fighting her habitual core contraction and efforting in reaction to the weight of the clay were no longer so ingrained, Joan noticed that the quality of movement and strength in her hands was softer and more resilient. She discovered a kind of control that was more fluent, sensitive to the varying density and texture of the clay and responsive to her intent. Joan's psycho-physical conception of necessary force was conditioned by her experience of working under stress, and by cultural ideas equating a sense of efforting with strength.

Strength

The kind of strength that is generated by focusing primarily on the goal (lift up that object) is different from that which is created by paying attention to balance and the flow of movement through the body as you move. Mechanical models of body movement usually focus on what contracts: muscles as agonists and antagonists--survival of the fittest combined with the maxim "no pain no gain." I often find it effective with my students to focus on the flow of release through an integrated system of mind, muscle and bone. Structure is fluid.

In group classes I do a demonstration of strength. I ask for two people who feel strong today to come and assist me by pushing down on my arms which are bent at the elbows and held out and forward of my body. First I demonstrate "non-Alexander" efforting and goal-orientedness. I try very hard to push against their hands, to resist (react to) the pressure down by pushing up and in. All kinds of horrible contraction is immediately apparent through my body, and no matter how hard I try, I am relatively weak. After I relax and recover from the first try, I think differently. I release my head and spine to lengthen, and I focus on a flow of energy (movement) from the core of my body out through my arms and beyond. Two huge weight-lifting guys will be unable to budge my arms, even pushing with two hands! And I appear to be quite at ease, with no bunching of tension in my neck, shoulders and back. I actually feel quite energized. Everybody is surprised and amazed. Then I tell them my trick and we experiment to find how each of them can focus to release and support movement.

The present faulty subconscious use of the psycho-physical mechanism, in our educational and other spheres, makes for the gradual increase of defective equilibrium. . . . The fact is that people walk without any clear understanding of the guiding and controlling orders which command the satisfactory co-ordination and adjustment of the psycho-physical mechanism in the act of walking. Hence when one or more defects become present in the functioning of these mechanisms, even though the persons concerned may be aware of their cause or causes, they are incapable of establishing once more that standard of reliable sensory appreciation which would enable them to eradicate these defects. This needs a process of re-education on a general basis, which will restore satisfactory functioning throughout the organism, and so ensure a continued raising of the standard of psycho-physical equilibrium right on through life.

--Alexander in Maisel, 1986, pp. 20,21

This story demonstrates the difference between relying on the sensation of internal tension for power and control, and working with the organizing flow of movement and balance within the body. But it is the attitude of mind that makes the difference. Focus on the process of balancing in action requires a willingness to let go of trusted and familiar ways of moving. Even our perception of balance is conditioned by our cumulative experience--otherwise known as habit.

Habit Conditions Perception

Paying attention to the process of moving and attending to the primary reflex allows us to move outside of our habitual range of action. Because perception is shaped by our expectations, goal-oriented intention tends to reinforce habitual tendencies. The inner ear and our whole proprioceptive system are based on comparing present with cumulative experience. Right, even upright, is gauged by habit. When people allow themselves to respond to extension and release through the body, they often feel unbalanced. Yet this disequilibrium allows for the development of a range of movement that is more flexible and supportive. Disequilibrium literally and metaphorically signals the possibility of learning.

An elderly man studied with me because he was concerned about falling. Jack also experienced pain in his knees and hips, particularly when walking up and down stairs. He was inclined to pull up and back to hold himself "upright" and straighten his leg as he reached it forward to take a step. A good part of this pattern was ingrained "good posture" from his military training. However his

fear of falling was also reflected in the rigid reactive tension in his head and spine. Jack had come to associate his tension with a sense of control, which only made him tighten more in the attempt to resist falling.

As he seemed to me to be a practical, logical and intelligent person with a good sense of humour, I explained Alexander's theories and demonstrated with a variety of silly caricatures of different ways of standing and moving. It made sense to Jack that his habits might be colouring his perception of how much effort he was using to balance, and that resilience might provide more stability than rigidity. With hands-on guidance while standing, he was able to allow the reflexive release of his head and spine, and he stopped tightening and holding backwards. When he stopped straightening his legs to push against the ground and allowed his knees to soften, the balance of his torso shifted forward at the hip hinges. Jack felt as if he were falling over forward, yet when he looked sideways into the mirror, he could see that he was actually more upright. With the security of my guarantee to catch him if he fell over, Jack and I experimented with many ways of walking in which the ease in his spine allowed a springier gait.

He found it quite exhilarating, in part because the energy that was trapped in the efforting of countertension was freed up. Walking down stairs was a challenge. If you are afraid of falling the sensation of falling forward on a staircase doesn't seem safe. Most people look down, tighten up and stick their leg straight down in front to try to find the next stair. All that is really necessary is to relax the back leg to bend as you let your weight move up and

. . . For unbalanced psychophysical development connotes unsatisfactory equilibrium in all spheres, and unsatisfactory equilibrium is ever associated with fear. As we have seen, since man's entry into the civilized state, he had been developing more rapidly on what is called the mental side, whilst on the so-called physical side there was actual deterioration. He had thus been building up within himself two forces, as it were, the one working against the other, until it was almost as if he had developed two separate entities, the "physical" and the "mental." It was the conflicting demands of these "separate entities" which caused the interference with psycho-physical equilibrium and produced in him the condition of inward fear to which I refer.

This new fear--actually a fear of the himself--gradually developed until its presence was recognized as an urgent problem, and it is in man's solution of this problem that we are faced with a conception which will be seen to be a most harmful one when considered in relation to his evolutionary progress.

The conception to which I refer is that of the separation of the human organism into the parts which have been named soul, mind and body. Those who were bent on this separation attempted, in obedience to their own arbitrary and unreasoning conception, to develop each of the three parts named soul, mind and body, specifically, nay, even to make a class-distinction, as it were, between them. . . . Surely, even to those who believed in this separation, their knowledge of the process of Nature should have indicated the place which the body should occupy in order of importance, and its relationship to the other parts in the series named body, mind and soul.

--Alexander, 1923, pp. 73,74

forward, then allow the forward leg to relax as the weight shifts. To become familiar with this action Jack and I practiced my "silly walk"--named in honour of the actor John Cleese, a longtime Alexander Technique aficianado. This involves allowing the torso to glide lightly across the room while relaxing the knees like suspension springs with each footfall. It may feel silly, but this walk takes all the stress away from the knee and hip joints. All this energetic experimenting certainly focused Jack's attention on the process of walking and off of his sense of limitation. After having more lessons, Jack even progressed to practicing falling--on mats. Again, allowing a relaxed lengthening direction through the spine, while softening and hinging at the hips, knees and ankles allowed him to negotiate his way through that movement as well.

Fear and Traumatic Injury

The Primary Reflex in Relation to Trauma and Fear

The intrinsic connection between the primary reflex and the experience of fear and trauma was not explicitly addressed by F.M. Alexander. The description of startle pattern at the beginning of this thesis is my own (see "The Primary Reflex," p. 8). Alexander worked with the primary reflex through his experimentation with habit and conscious attention, and was particularly interested in the development of conscious control to free people from habitual and instinctive reactions. He was influenced by Darwin's theory of evolution, and believed that humans had evolved to a higher state where conscious rational thought was necessary for survival (see

We are not reptiles, but without clear access to our reptilian and mammalian heritage, we are not able to be fully human. The fullness of our humanity lies in the ability to integrate the functions of our triune brain.

We see that to resolve trauma we must learn to move fluidly between instinct, emotion and rational thought. When these three sources are in harmony, communicating sensation, feeling, and cognition, our organisms operate as they were designed to.

--Levine, 1997, p. 265

Alexander, 1910). The need to see "man" as somehow more highly developed, as above or outside of the uncontrollable forces of nature, was an undercurrent in the culture Alexander was embedded in. He developed and taught his method to improve his own and other people's active functioning. To that end, he focused on the value of reflexive release, but he did not fully explore the meaning of reactive tightening in relationship to the whole pattern. Alexander, and many teachers and students of his method, seem to value most highly the range of expression from neutral through active. Though ideally reactive contraction represents a much smaller percentage of experience in daily life, it is integral.

My own cultural context is quite different and somewhat less anthropocentric. Perceiving humans as embedded in the ecosystem and recognizing that in the scheme of things I could be both predator and prey (actor and reactor) has given me a different perspective on the startle reflex. From this vantage point, which includes the concepts and skills I have learned from Alexander's method, I see a primary pattern that includes action (extension), reaction (contraction), and the field of attention that I call presence of mind, each part of which is essential for survival. My ideal is to develop my skills and increase my resilience and fluency in moving through the whole range of my expressive capacity.

Peter Levine, a well known contemporary "scientist-healer" from another tradition, is the only other practitioner I have found who also recognizes the significance of the primary reflex. Though he works with many of the same elements that I do, he doesn't address the reflexive movement of the spine as an organizing

support for movement. Levine's work with healing trauma (see Levine, 1997) is founded on a conception of startle pattern that is similar to mine, but not identical. In the "hyperarousal" situation he describes, the sequence of actions is fight/flight/freeze. From my practice of working with stress response, I know that there is a significant initial freeze that allows for choice of action. That choice then determines the progress to fight/flight or the deeper dissociative freeze that Levine identifies with post-traumatic stress. In my teaching practice I focus on the constant ebb and flow of the primary reflex pattern in everyday life, and particularly on the moment of reaction that allows for reflection and choice. Some examples of working with the primary reflex in relation to fear and traumatic injury follow.

Stories About Reflex and Healing

An accountant (I will call him Paul) began Alexander Technique lessons with me after two frustrating years of trying to recover from a car accident that caused whiplash and soft tissue damage. Before working with me he experienced chronic back pain, neck and shoulder tension, and difficulty with computer keyboard use. After about a year of study, he was without pain and able to work at the computer without restrictions. He had also developed a very good capacity for the kind of self-observation and experimentation that is part of the process of applying Alexander principles in everyday life activities.

One day in the middle of the tax season he arrived for a lesson in a state of extreme distress. He told me that he had just had

another car accident, identical to the previous one. As he was stuck at a stop light at the bottom of a hill, he watched in the rear view mirror with dread as a car unable to brake plowed into the back of his car. With fatalistic despair he said: "I can't go through another two years of hell; this is my most demanding work time; my god, what am I going to do?"

We immediately began work in the resting position. He was laying on mats with his knees bent, his hands resting on his rib cage, and his head resting in my hands. I could feel the reflexive contraction of startle pattern through his body, and it took quite a long time of focusing on the release of the head/spine connection for him to allow his back to expand and lengthen. We then gradually worked our way through the whole accident experience in imagination, starting early in the drive before there was any inkling of danger. This was not a process we had tried before. As we approached the accident scenario, there were moments when the startle reflex triggered tightening in his spine. At those moments we would stop and focus to release, back up a bit in the story, then continue to move through the memory. After about an hour and a half, he was able to relive the entire accident without any reaction in his body. His whole system had relaxed, and he no longer felt traumatized.

Aside from some mild soreness in his muscles for a few days, he had no lasting effects from the accident. Paul's quick recovery is attributable partly to the skill he had already developed in working with the reflexive contraction and expansion of the spine. The ability to function with minimum stress to his system in his

everyday life activities--his "good use"--also allowed quick healing. The confidence from previous successes and the relationship of trust with his teacher were extremely supportive in helping him to deal with his experience.

Many people who have accidents causing whiplash and soft tissue trauma experience long term difficulties performing daily tasks that were not previously perceived to be a problem. What I notice when I work with these people is that their long term habits of use are actually very stressful and full of complexity and constriction. Under normal conditions, without traumatic injury, the body can sustain these labour-intensive and potentially damaging movement patterns. However, when the system is also coping with healing injuries, the body's tolerance and resilience is lowered. This state of vulnerability is also generated by tiring repetitive actions and various physical, emotional and mental stresses. Another factor in the healing process is the contraction of reaction to pain which can aggravate inflamation and restrict movement. After the healing process, the protective habits acquired in response an injury can become a problem in themselves. However when people come to understand that they can learn to function more effectively than they did before, they feel empowered by a learning process that will not just "give them back what they've lost." By developing the awareness and skills to work with the interplay of conscious attention, intention, habit and reflexive response, one can learn through the changing demands of life.

The way of working that I just described differs from Levine's method of dealing with trauma in that it deals directly with the

movement reflex that is integral to stress response. Levine also uses sensory awareness and redirection of energy, but without directly addressing Alexander's reflexive key (Levine, 1997). Behaviorist and most medical approaches treat the parts without addressing the whole body pattern (the whole self). The primary reflex that initiates contraction and expansion throughout the body profoundly affects tonicity, mobility, perception, and choice of action. The experience of a student (patient, subject) and her/his experience of the interaction with the teacher (practitioner) will shape both conscious and unconscious responses. I include in unconscious responses the autonomic nervous system.

My Alexander Technique teacher James R. Howell helped me to recover from an accident I had early in my studies with him. Howell was also a dancer, musician and physiotherapist, which shaped the ways in which he worked with me. I only fully understood the dynamics of my experience many years later after I had encountered parallel circumstances through my own teaching practice. The following stories are illustrative of the contrast between treating a body part and engaging in a process that includes an understanding of reflex and addresses the person as a psychophysical whole.

One evening after dance class I was distracted as I was leaving the stage and fell from a platform raised about two feet above a concrete floor. As I dropped forward I reached out and braced myself with my arms. Afterwards, I was in shock and only felt some discomfort in my right wrist and a desire to keep my arm bent close to my body. I didn't feel the full brunt of the pain until

later, and spent the night crying with my right arm propped on pillows. At that time in my life I was studying the cello at an advanced level, intending to make music my profession. I also had become very committed to my dance and Alexander Technique studies. The tears that night were not only for the pain, but also in fear of the effect an arm injury could have on my career. There was also the concern about how to get good medical treatment as a student with scant financial resources and no medical insurance in San Francisco.

In the morning I found a specialist physician who would see me and my $125. immediately. After examining the x-ray and my arm he demonstrated a very limited range of motion and said: "You don't need to move your arm more than this to play the cello do you?" He then informed me that I had fractured the radial head in my elbow and that if he put a cast on it, it would likely freeze in a bent position. For the future he predicted arthritis. My only hope was to support it with a sling but use it as much as possible in spite of the pain. And good luck.

When I arrived with my x-ray at James Howell's house I couldn't unfold my arm at all and I was quite despondent. Jim looked at the x-ray, assured me that he wouldn't do anything to cause pain in my arm, and did some basic standing Alexander work with me to free up my head, neck and back. The reflexive release of the spine causes a general easing through the musculature that allows the joints to open. As I focused on directing my spine to ease upward, Jim asked me to let him hold my arm, and to rest it on his hands. Because I trusted him, I was able to stop clenching my arm

muscles and allow him to support it. He was able to free my arm from the shoulder, and then extend it almost straight without my experiencing any pain. He helped me to focus on lengthening and relaxing as I directed the movement of my arm myself, though I wasn't able to open it as far as he could. Jim reassured me that if I focused on lengthening beyond my hand, expanding in the joints, and not pushing as I used my arm, I should be fine.

After several months I regained almost the full range of movement in my arm. During that time I went through many dance classes with one wing open and the other bent, played my cello, and continued my part time house cleaning jobs. As I improved, Jim even insisted that I join the class in doing push-ups in a hand stand (feet against the wall, with a supportive spotter). I had previously found them frightening even with two healthy arms. But I found that as long as I kept my attention on lengthening through the arms and opening in the joints I was able to support myself and do the push-ups. In retrospect and in the light of Peter Levine's work, the fear and then release I felt in coping with the push-ups probably cleared a lot of the residual startle reaction from my system. I can distinctly remember feeling a flood of relief, pride and calm after my first set.

Over the years I have worked out slight limitations in flexibility which were mostly due to the habits of use that developed from believing that my movement was restricted. For a long time I could not touch my fingertips to my right shoulder. One day in a wildly gynmastic African dance class I bashed my elbow and it swelled up. I was so horrified that I bent my arm to check its motion and--

Good ends cannot be achieved by inappropriate means. The truth is infinitely obvious. Nevertheless we refuse to act upon it. That is why we find ourselves in our present predicament.

--Huxley, 1937, p. 185

surprise--my hand touched my shoulder. The key here is that I didn't know what to expect, so I allowed my arm to move. For some time afterwards I could recreate my old idea of restricted movement and be unable to bend my arm fully. Then I could change the way I imagined the movement and immediately free my arm. This was a useful demonstration for my teaching. On occasions when my elbow felt constricted or painful I would first leap to the predicted conclusion: arthritis! After paying close attention to my activities and using my Alexander skills, I have always ended up with an even freer range of movement in my arm--to the point that my right arm is practically as flexible and better organised than my left.

Though valuable, a strictly medical approach which treats the body mechanically has its limitations. Through my teaching I encountered a woman who had broken both elbows in an accident. After about six weeks of intensive rehabilitative care, her range of motion was still quite constricted. As she described the therapists' attempts force her arms to open while she experienced intense pain and distress, her whole system was obviously tightening in a fear reaction. With gentle manipulation of the head, spine and legs (avoiding the arms altogether), she relaxed her shoulders and arms and discovered a much larger range of motion. Not forcing, but rather supporting the movement by releasing the whole body was very effective and allowed her to become positively engaged in the healing/learning process.

Paying Attention to Reflexive Contraction as Reaction

Contraction in reaction is a signal that a person is not ready or is not committed to action. In the language of stress response, contraction means: NO, WAIT. Training through the pain and forcing stretches to gain flexibility can produce results, but the underlying process is internal struggle. With the increased complexity of inappropriate counter tensions the system is more likely to break down. Since the stakes are higher, the reactive aspect of startle pattern is intensified. An analogy: would you like the pilot and copilot of the jetliner you are riding on to be engaged in a furious disagreement about how to fly the plane as they are taking off?

Another factor to consider is that in a very practical way, everything we do is training. If in your weight training or exercises you are working against your own resistance by bracing yourself and clenching inwards, then you will probably pick up your grocery bags or your briefcase in the same way. If you are moving in a way that reflects stress response, you might very well *feel* stressed. Unnecessary efforting takes up a great deal of energy that might be more happily directed elsewhere.

We each have learned ideas about how to do things; I call those habits cultural or personal choreographies. I use the word choreography as an acknowledgement of the creativity and meaningfulness of the initial development of those habitual patterns. We develop these expressions within a context, often with conscious intent, and they generally have a practical and/or aesthetic value. However if those habits are applied without respect for the psychophysical dynamics of the present, they can result in

goal-oriented, effortful and injurious action. Looking at this process at the societal level, ideas become cultural norms and artistic ideals that shape our perception and the ways in which we direct our learning. These cultural habits can become entrenched in spite of their practical repercussions.

Interaction of Habit and Expression

Training to Tighten

When contraction dominates and shapes action, the result is often insupportable. Within any discipline, as within any habitual pattern of thought or functioning, the things we take for granted may actually be working against our ability to fulfill our intentions. Examples from the arts are useful here to show how historical trends and aesthetic ideals shape our perceptions and the choices we make.

I studied ballet and modern dance as an adult with my Alexander Technique teacher James Howell. From his twenty-five years' experience as a dancer, musical/choreographic assistant and teacher with the Joffrey Ballet, as well as study with Martha Graham, he developed a dance training process that integrated the developmental, healing, and expressive aspects of the art of movement. He experimented with the form of ballet to find ways of supporting and directing movement without the distorting tensions that had become part of the culture and technique of ballet in the twentieth century. Sometimes injured professional dancers would join our daily classes for a period of recuperation.

Sensory appreciation conditions conception--you can't know a thing by an instrument that is wrong.

--Alexander in Maisel, 1986, p. 11

When I had my own dance studio, I sometimes worked with dancers who were unable to find ways to dance without injury in traditional forms. Kathlene had studied Ballet and participated in gymnastics since she was seven years old. By the age of nineteen, she was unable to dance, and even had difficulty walking, because of repeated knee and ankle injuries. She was accustomed to a constant level of discomfort in her spine, and she accepted this as "the price she paid" to train her body as an instrument of expression through dance forms. A few weeks after joining my adult dance classes, Kathy also began private Alexander Technique lessons.

The most difficult adjustment for her was to stop tightening her muscles and hyper-extending her knees. Freeing the head/spine reflex triggered release of the excess tension through her legs, abdomen and upper back, and relieved most of her pain. But when she tried to do familiar actions, Kathy was convinced she needed to do all kinds of active controlling. She had been trained to tighten her abdomen and her buttocks, pull her sternum up and shoulders back by gripping between the shoulder blades, and push her knees back and hold tension in her thighs to straighten her legs. Reflecting the physical training, the aesthetic conditioning in her disciplines is very rigid. She was horrified at the thought of letting a relaxed belly be seen, and the shape of her leg with the knee eased forward into a bump instead of clenched concave was almost incomprehensible. It took several lessons and a lot of looking in the mirror for her to trust that she could balance with so little tension

and not fall over or look ridiculous. The relief from pain and the impossibility of dancing with her old habits kept her coming back, in spite of the extreme challenge to her ingrained dancer's aesthetic.

The aesthetic ideals of ballet have changed over time. The scale of forms in Ballet as we know it today developed in the Court of Louis XIV in France (1643 - 1715). The positions and movements were systematized in a way that respected the natural form of the human body. Dance was a highly social activity and was an integral part of social functions, "performed" by the whole group or in the centre of the room. Through the nineteenth century, dance became more of a "spectator sport" as it was performed on a stage, framed by the proscenium arch. Reflecting industrialization, the dancers became parts to be manipulated according to the choreographer's vision. In the frame bodies were seen as visual lines, and the dancer's focus and self-reflection became more and more externally defined. The use of mirrors (a flat image) as a gauge of movement and balance began to shape that culture's conception of the expression of the body through movement.

The natural "turnout" of the legs from the hips is approximately ninety degrees; an open stance does support ease of balance in many movements. However as dancers' bodies were redefined in terms of visual lines, French choreographers decided that it would look better if the feet were pointed straight out as the dancer extended her/his leg to the side. So a machine was constructed into which dancers strapped their feet. By turning a rachet, the feet, ankles, and lower leg bones were torqued and twisted to create a one hundred and eighty degree turnout. Adding to the damage, the

The feeling of motion we have shown is the simplest, earliest, most universal, known, psychic rudiment of animal life. It is distinguished from every other sensation in being identical with its objective cause or aspect which is also motion.

--Dearborn, 1913, p. 226

straight-legged hyper-extension of the knees increases the pressure on contorted joints, tendons, muscles and ligaments. The natural movement of the body was distorted to match the preferred expression of an aesthetic ideal. Dance became an idealized movement form that was primarily visual and treated the body as an externally directed object.

Kathy's injuries reflected the training that grew out of that tradition. We worked through ballet forms--minus the unnecessary tension--to realign the balance in her legs and eliminate the strain on her knees and ankles. Also, the gymnastic fashion for pointing the foot is to extend the foot toe inwards. Combined with the tightening of the legs, it sets a pattern in the leg that will easily cause a sprained ankle on a poor landing from a jump. Kathy learned to extend her foot in a centred alignment with her newly springy legs. As she relaxed her abdomen, she released the counter-tension pattern in her chest and upper back. Without mirrors in the studio, Kathy developed a more three-dimensional sense of self-expression. Her kinaesthetic sense became a more valued reflection of her movements than the image in the mirror. By continuing to use the skills of experimental self-observation and direction she had learned, Kathy was able to continue her study in a variety of dance styles and perform with a modern dance group.

Gaining a sense of control of movement by setting up a dynamic of internal tension is a common tendency in physical disciplines, particularly in education that starts in childhood. Children have an enormous amount of energy. The attempt to get them to channel it often becomes an effort at containment which is then internalized.

The pressure to accomplish skills (goal-orientedness) can short-curcuit a developmental process that requires growing awareness and respect for one's own internal dynamics. If one begins by associating actions with internal tension, the sensation of efforting will seem essential for success. Training people to disrespect the signals of pain or resistance from their bodies shuts down a part of their capacity for learning from themselves.

Habits and Expressiveness

Charles, a third year piano performance major at the university, started Alexander Technique lessons on the advice of his teacher and his physiotherapist to deal with tendonitis and tension and pain in his neck and shoulders. I asked him to play for me, and I could hear and see that he was a very imaginative and expressive musician. Unfortunately, in almost every instance he unconsciously associated intensity of expression with the actions of tightening in his head/spine connection and contracting into the core of his body through his hands, arms and shoulders. When he wanted to play loudly and powerfully he braced his arms and used a great deal of unnecessary force.

In response to these habits, we explored the technical possibilities of using balance and momentum instead of efforting to produce a large range of dynamics and tone qualities. Also, different physical expressions emerged as Charles used images to focus his attention that suggested emotional or tangible qualities.

Our experiments were grounded in the body through attention to the reflexive response. Ideas suggesting movement and flow made little sense to him, given that his everyday movements were very contained and defined by internal tension. So I taught him to juggle.

People get very excited when they try to juggle. They desperately want to *catch* all those balls that are flying around out of control. Juggling is actually very uncomplicated, and the way to do it with ease is to pay attention to the throw (process), not the catch (goal). If you focus your visual attention at the top of the arc instead of trying to follow all the movements of the balls, you will find a relaxed inclusive perspective from which to monitor and direct the action.

The energy of emotional expression that Charles had expressed through contracting inwards--to the detriment of his playing--we addressed mostly through the music. Through looking for the stories, meanings, textures, and directions of motion in the musical composition, Charles became engaged in an experimental process to discover more effective ways to fulfill his musical intentions. He began to look for different qualities of physical expression, or tone, in his sense of himself.

The ways that people move in practical everyday actions often mirror patterns that are hindering them in their highly skilled activities. At some point in our lessons, I found out that Charles bicycled almost everywhere, in all weather. The gripping and bracing in his arms in reaction to the hardness of the road and the noise and stress of traffic was the same as his bracing against the

hardness of the piano key bed in loud and powerful playing. Re-balancing his movement to allow responsive resilience became a theme he pursued in many different activities with transformative results for his piano playing.

Ellie was another of my students from the School of Music. In her first year, she found that her habits of playing could not sustain the sudden increase in piano practice, accompanying and performance demanded by her course of study. She was orienting her hands to the keyboard unevenly and was collapsing her palms and raising her wrists. This configuration of use is not unusual in pianists; Ellie's body was less willing to tolerate the stress of inappropriate counter-tension. Sooner or later most musicians need to rid themselves of accumulated habits that are not supporting their playing. I tell this--as comfort--to my music students who feel frustrated at not being able to play, and remind them that pain is a message from ourselves to our conscious awareness that the choices we are making are too difficult to sustain.

By exploring the range of motion in the joints of the arms, always first allowing for the reflexive release that balances the musculature and opens the joints, Ellie discovered the pronation in her forearms that supports all the fingers equally. We also noticed that she liked to stretch her fingers to hyperextension and push through her palms as an all-purpose expressive gesture. She found the sensation in her hands pleasurable, but the contraction that she held in the muscles afterwards created an exhausting struggle when

she tried to play. The arms and hands are most articulate and flexible when there is some arch under the palm and through to the fingertips.

With your hand relaxed, turn the forearm so that your palm is facing upwards. Notice that your hand is slightly curled. Keep the same hand shape and your wrist neutral as you pronate the forearm so that your palm faces the floor. Now rest your fingertips on a table and notice how springy your hand can be.

Ellie is a charming but somewhat introverted person. In reaction to some circumstances she would withdraw into herself. As part of the physical expression of this, she tended to contract her forearms back and in, arch her wrists, droop her hands and pull her fingers back. This pattern does not support playing the piano. The piano is not only a vehicle for the expressiveness predispositions of a player; to perform music is to be in relationship with the instrument, the composition (and composer), the other musicians, the audience and yourself. Ellie found some new freedom from technical constraints by trying on different characters and paying attention to the character of the music. Every character expresses ways of organizing movement and relationship.

I offered Ellie the example of Liberace. She is too young to have seen him, so I told her about his outrageous costumes, painted pianos, and dazzling technique. He was able to play very showy and difficult repertoire and toss off his runs with a flourish, all the while looking out at the audience with a generous and engaging smile. When I suggested that Ellie try her version of that character

(just in the lesson) she cringed in embarrassment, then laughed. It was quite delightful to meet her eyes as she used big, relaxed, sweeping gestures to play thunderous chords, all the while grinning at me across the room.

I have written about working with musicians to overcome injuries. Though injury often inspires people to pay attention to what they are doing, the process of experimenting with our relationship to what we do can be extraordinarily creative, interesting and satisfying. You might think that an artistic pursuit is different. It is assumed that it engages the whole self, is expressive, communicative, meaningful and rich. I have often thought about the difference between typing on a computer keyboard and playing a piano keyboard. Both activities demand a similar balance in the arms, and the ergonomics of reading music are almost the same as reading text on a screen. With a piano, the quality of your physical expression is mirrored back to you by the sound and articulation you hear. But however you depress the keys on a computer keyboard, the words look the same. Perhaps the feedback is different.

According to T.M. Alexander "Dewey explicitly points to the example of the artist and the method of artistic thinking as a paradigm for intelligence. Art as a process is the civilisation of experience, it is the struggle to embody meaning and value in terms by which we are humanly realized" (Alexander, 1987, p.182). Why not look for these qualities from time to time in a trip to the grocery store?

The Empowerment of Learning Through Self-awareness and Choice

The traditional medical-scientific or behaviorist approaches to therapeutic and educational processes do not take into account the complexities of the person's habitual psychophysical functioning or the primary pattern of reflexive contraction and expansion and its effects on perception, movement, healing and learning capacity. By all means, treat the injured muscles, bones or ligaments with heat, cold, massage, surgery, ultra-sound, splints to immobilize, manipulation to mobilize, whatever is most appropriate for the parts. But there is also a whole person present and engaged in the process of living, full of resources and predispositions. The capacity for developing self-awareness and new skills is limited by the assigned role of passive recipient of treatment and by actions shaped by the idea that the body is an object to be acted upon (by oneself or others).

No description of an exercise is heard or read or seen objectively. My students often bring a sheet of recommended exercises that a chiropractor or physiotherapist has given them. The way in which the practitioner knows these actions is miles away from the experience of the patient. As I watch the student approximate the actions they've learned from the sheet or the therapist, I see the habitual contractions and counter-tensions that contributed to injury or restriction being practiced diligently through the medium of exercise. Even pain that signals damage is accepted as normal if it is familiar. The exercise as presented is an

inadequate metaphor for the experiment in movement and self-reflection that will bring about a structural and practical shift in the *use of the self.* If you don't change the underlying psychophysical habits, the cure is likely to be temporary and perhaps shift the imbalance elsewhere. The student/patient is not in a position to choose how to use the exercise to best advantage because unconscious habits of use colour perception.

People who are injured or trying to increase skill or ability need to understand and re-calibrate their internal compass if they are to gauge the effectiveness of their practice. According to Alexander this compass is the kinaesthetic sense informed by the primary pattern of reflexive contraction and expansion through the spine, and the ability to attend to it. Valuing ease and simplicity, developing the ability to interrupt an habitual action, and focusing an active directive attention on oneself in the process of movement are the skills for making ongoing course adjustments.

A medical assessment will often include an analysis of which muscles are disproportionately weak or strong. The recommended and certainly useful treatment might then be exercises which isolate and strengthen certain muscles, keeping in mind that how the exercises are performed is key. A question that needs to be asked is *why* the person developed the imbalance. The answer is that it is not only through *what* a person does but also *how.* And the question of how is not about muscles and bones as levers and pulleys, but the whole relationship of a person to self and the environment.

Over the past year Allison, a supermarket cashier, had been off work for weeks at a time because of tendonitis. She had received effective physiotherapy and massage, but found that as soon as she went back to work, her arms flared up again. She was diligently doing the exercises that had been prescribed. As her previous weight training routine was aggravating her condition, Allison had recently taken up swimming and found it to be relaxing and not injurious. When Allison described (both verbally and physically) her work at the store, I could see that there were many interconnected factors contributing to her problem. Not only was she using the register, but she was also reaching and lifting and packaging groceries, and dealing with the stresses of time pressures and social interactions with customers. The area in which she had to work was quite small and Allison tended to brace her legs and twist from her waist to reach for things.

As we talked, I noticed that Allison had a tendency to tighten the back of her neck and extend her face toward me. This is a very common expressive, communicative movement that signals engagement, and was obviously part of her interaction with customers, but it hooks into the contraction of startle pattern. A long line at the register and the attempt to rush in response also triggered the reflexive startle contraction of the muscles that connect the head to the shoulders, neck and upper back. The contraction of those muscles is transmitted through the arms, and had become habitually linked to the action of bending and lifting the arms. In other words, Allison's expressive movements and her reflexive stress response influenced her use of her arms, and her

way of using her arms recalled the reflexive contraction of stress response. In her exercises as well, reaching and lifting meant pulling and holding in toward the body. So Allison was tightening muscles at the same time she was trying to extend them, adding effort on top of effort. All this continued to cause pain and fear of injury, which reinforced the reactive response. Also, contraction through the spine inclines people to brace their legs. The bracing of the legs tightens the muscles that connect the legs to the pelvis and lower spine, and tends to immobilize the hip hinges, isolating the action of the upper body and focusing bending and twisting action in the neck and lower back.

It is possible to read this description from a behaviorist perspective and see conditioned responses, malfunctioning parts, and actions as automatically controlled by the environment; then attempt to change the environment and make new particular behaviors automatic or unconscious--in behaviorist terms, not controlled by the self. The way in which I (and Alexander and Dewey) perceive this situation is quite different. All of the ways in which Allison acts were and are choices made by her. They may well have been and continue to be unconscious choices, but they are nonetheless choices made within her self. The body is not simply a piece of machinery, but rather a vital moment to moment expression of intention and interaction. The understanding of reflex in our paradigm allows for continual learning through self awareness and choice, which is empowering. Substituting a new set of habitual--as in automatic--behaviors will just create another set of future problems. Creativity allows for continual adaptation. The

Unfortunately, we have been taught that all the ordinary, most necessary, and therefore most oft-repeated acts of life should be automatic and unconscious; for this reason they have become indifferent. The psycho-physical condition here indicated is one that induces stagnation in the organism, and, as it is a condition which becomes more and more pronounced with advancing age, we gradually lose the capacity to take conscious interest in and derive pleasure from those normal and useful activities of life in the sphere of doing, hearing, seeing, etc.

--Alexander, 1923, p. 307

Routine is highly esteemed and frequently required. . . . I like to imagine a species of art-praxis wherein each case should be a new one, an exception! . . . Routine transforms the temple of art into a factory. It destroys creativeness. For creation means, the bringing from out of the void; whereas routine flourishes on imitation. It is "poetry made to order." It rules because it suits the generality: In the theatre, in the orchestra, in virtuosi, in instruction. One longs to exclaim, "Avoid routine! Let each beginning be, as had none been before! Know nothing, but rather think and feel."

--Busoni, 1911, p. 100

movement, the learning, is in the process; the ends are a reflection of cumulative experience.

I caricature a common experience for my new students. I pretend to have good posture--the shoulders back, chin tucked, stomach in, chest out, legs straight version. I ask if I look as if I am "objectively" upright. Usually people tell me that I appear to be leaning back and that I also look pretty uncomfortable. Then I stop doing all those unnecessary cultural choreographies, let my head and spine release upwards, let go of my shoulders, relax my knees, and hang out and away from my hip hinges. The concensus is always that I look more upright and happier. Then I suggest that for someone who habitually tightens and holds back, this new balance would feel forward--but only for a day or a week or so. Because our proprioception is continually conditioned by our experience. If that person decided that to be correct, she should feel that she is leaning forward, within a week, she will have over-corrected and will be leaning forward. What are we to do? This is not a recipe for despair, but rather an invitation to focus on something different--not on a particular experience of upright as the correct one, but on a process of balancing that allows the body to continually gravitate toward ease.

Actions that do not engage our attention and interest inevitably become deadened. I often have students in their thirties and forties who complain: "I can't do things the way I used to" and "my body is hurting in everyday activities that I should be able to take for granted." I draw an analogy to a boring, mundane, repetitive job in which you have no interest, where there is nothing new to learn

and little acknowledgement for your efforts. If you were to do that job for twenty years in the same way, all day, every day, wouldn't you get bored? The answer is always yes. And would you complain and want to quit? Yes. So if your body, another aspect of your self, is living that way, is bored and frustrated, wouldn't you expect it to start whining? One effective way that our physical system communicates with our conscious awareness is discomfort, and if we don't listen, pain.

Now I will return to Allison's lessons. I started by helping Allison to become aware of the reflexive release in her head/spine connection. We experimented in simple ways with standing, bending at the hips, and walking. With hands-on guidance as feedback, Allison was able to experience those actions without her habitual holding. She also noticed her knees soften in response to the easing upwards through her core, felt her neck and shoulders relax, and allowed her arms to hang more loosely. At her next lesson, Allison told me that she had observed herself at work and noticed that she was tightening her neck all the time! She particularly noticed this when she was talking to customers, but found that when she stopped pushing her face forward and let her head ease back and up over her spine, she felt less like "herself" and more distant. We experimented with the different sense of self-expression that resulted from staying centred in her body balance and paying attention to herself as she talked.

Allison next reported that since she had been letting go in her neck and shoulders more often, she felt a relaxed heaviness in her arms. In contrast, as she reached for the keypad or a grocery item,

For it is only after we have solved this problem in the individual that we can safely pass on to the secondary consideration of "cause and effect" in connexion with the problems of everyday life. Only then shall we be justified in asserting that individual reactions to stimuli will be the reactions of a controlled human creature, whose employment of the processes of reasoning in the activities of life prevents the undue and harmful excitement of the fear reflexes and emotions, especially when he is called upon to deal with those new and unfamiliar situations or problems which are the natural outcome of all processes tending towards advancement on the evolutionary plane.

--Alexander, 1923, p. 317

she noticed a lot of contracting in her arms. Though this seemed like extra efforting, it was familiar and as far as she knew necessary to do those actions. We spent several lessons exploring new ranges and qualities of motion in the arms by applying the concept of using extension instead of contraction for movement and support. Allison noticed that while swimming she was more inclined to use her arms in this way, so swimming and being supported by water were useful metaphors for focusing on directions of release. She also developed a springy, rounder palm shape that allowed her to stop tightening her forearms and let her relax and bounce her way around the keypad. For picking things up, she rediscovered the kind of grip that a baby uses: not clenching inwards but wrapping her palm and fingers around like a starfish or an octopus, feeling the contact between her hand and the object.

The bracing that Allison did with her legs was partly due to the fact that the counter was too high for her. She was straightening her legs to try to get higher for better leverage. The tightening of her legs immobilized her hip hinges, which forced her to bend, twist, and support from the waist upwards--a familiar action for people who brace against the front of the sink while washing dishes. We devised a six inch high platform for her to stand on. This made it much simpler to hinge at the hips while letting the knees give forward, creating flexible support through the whole body. By directing the head to lengthen the spine as it led the spine to twist, Allison distributed the twisting motion through the whole spine. Her arms were then supported by the musculature of the core instead of by the muscles that connect the shoulders to the neck

If we do not consider self-organization to be an essential (even defining) quality of process, then we are left--as Newton pointed out in his "First Law of Motion"--with the alternative assumption that all being changes from its present state only through external force. Whether we consider this external force in terms theological (God), metaphorical (fate, chance), or personal (the teacher), it--the external force--moves us at its will and in directions it chooses; we only respond and react. Our role is basically that of receiver and spectator. To a great degree this has been a dominating, though hidden assumption framing American curriculum throughout this century.

--Doll,1993, p. 159

and head. She also varied her actions by moving her feet to orient herself to face her work. We also "Alexanderized" her exercises so that they became a vehicle for awareness in action, rather than a way of fixing old and new habits.

The new use of balance and momentum proved to be more effective than holding and pushing. The most important aspect of this kind of learning process is that it develops the skill of working with oneself. I am not meaning to hypnotize, trick or condition my students. I am intending to reflect a process that is functioning within them and encourage them to experiment to discover their enormous capacity for choice and learning. When I use the word experiment, I am refering to the process that Tinbergen described as "watching and wondering" (Tinbergen, 1974, p. 4). I am demonstrating a practical, experiential, problem-solving way of approaching everyday actions and offering students the instrument of their own neuromuscular-skeletal system as guide and gauge, not as a piece of machinery.

Teaching

Attending to Self

My Alexander Technique and dance teacher James Howell admonished his teachers in training, "Pay attention to yourself." He said that by paying attention to and from your own process you will be a better discerning instrument, and will inevitably reflect the deeper psychophysical patterns that are common to humans and other creatures, and thereby find relevent and useful conceptions to

offer your students. He participated in his dance and movement classes, describing the movements as he moved through them. Now I also teach in that way. I have found that if what I am saying is embodied in psychophysical awareness, I experience a flowing supportive connection to my knowledge base which allows me to creatively engage in the interaction of the moment. The interaction is simultaneously within myself, in relationship with students, and in the environment of learning we have created.

Alexander understood through his own experience the discipline of self-awareness that was necessary to continually challenge the perceptions generated by unconscious habits. He resisted the scientific experimentation of his era that sought to objectify the knowledge of experience and denied the perceptual bias of the researcher. The need in that methodology for predictability and repeatability in behavior mitigates against understanding a method that is focused on the process rather than the goal. His method and mine seek to understand the parts as a reflection of the whole, rather than creating a whole out of disconnected elements that are not seen to reflect intentionality. Alexander's understanding of the primary reflex came through his attention to his own process, and that attention to self first provides the self as an instrument in working with the primary reflexive pattern.

I don't teach *things* as objects of knowledge somehow independent of the exchange of understanding. Sometimes in a lesson, after a particularly effective process of observation and experimentation produces a useful insight, a student will ask me:

"Where did you learn that; was it part of your Alexander training?" The *that* might be how her/his extra efforting in the thumb unbalanced the hand, for instance. I reply that I did not learn it explicitly in my training. I go back and trace the path we took to find our way to that insight by the method of paying attention. It is my intention to participate in that process with students in such a way that they discover their own capacity for learning from themselves.

I have learned, and continue to develop, methods of exploration based on ideas arising from paying attention to the primary reflexive pattern. Some of those working hypotheses are (1) the whole self is engaged in every action; (2) if you stop doing what you are trying to do and pay attention, you may do what you intend; (3) movement is supported by expansion; efforting produces unnecessary counter-tension; (4) it is natural to react by tightening but we don't need to get stuck there; (5) poise and resilience allow us to choose how to direct our energies. In practice, whether as teacher or experimenter, these concepts can be explored through directing and monitoring one's own psychophysical processes.

Individualized Teaching

I admit that I get quite excited about the particular results of my experiments with myself and my students. The way the thumb can affect the balance of the hand is a very interesting study. I could draw pictures to indicate *the* way that the legs release away from the torso and the directions of efficient counter-balance through the bones and joints of the legs and arms in relation to each

other and the torso. And I do. I have dozens of ways (more every day) to explain how the shoulders ride on the ribcage and the shape of the spine. I have lots of useful exercises in my bag of tricks through which people might become aware of the movement relationships within their bodies. Every insight that develops in the context of an interaction inspires me to look everywhere for more of the same. Yet I often experience yesterday's brilliant inspiration falling flat in the next class. A particularly effective description in one context can be meaningless in another. Each exchange of learning/teaching is a new creative act, and when I watch the reflection of response in the primary pattern, I see whether a way of directing attention inspires extension into growth, withdrawal from engagement, or just disinterest.

Contained within any activity is a schema of relationships between reflex, habit, learning and creative potential. In the case of a musician with stressful habits of playing, for instance, the most effective remedy involves a learning process that takes into account his/her own relationship to the music, the instrument, and the self --which includes the primary reflex. A medical model that treats the parts does not address the pattern in context. Connecting musical intention, musical/technical demand, physiology, and the focus of attention and intention generates a practice that continually reveals the music and musician to him/herself.

The primary reflex is a reflector that keeps me honest. It is impossible to offer panaceas in teaching when it is so blatantly obvious to my eyes and hands that a particular suggestion at any given time is either meaningful and generative or not relevant.

There is a profound respect for the person of the student and of the teacher in this methodology. In the sea of creativity that we navigate, there is safety in the commitment to attend to the process of discovery without efforting against ourselves to control it. The forces that we are working with are too subtle, deep and powerful to take the route for granted.

I tell my students that if I suggest a metaphor or describe something in a certain way that they feel no affinity for, they are right. It isn't the case that they haven't gotten it; rather, we haven't found the way that is meaningful to their system. This way of working guarantees a continually engaging and creative process of experimentation that inspires and supports me as a teacher.

The Richness of Teaching

I pay close attention to what is going on; I ground my perceptions in the primary reflexive pattern; I acknowledge contraction even as I direct my attention to expansion and release; and then I look for the possibilities of expression in myself and my student. I know that what I see moving through my conscious awareness is the tip of the iceberg.

There is a way in which I have come to *know* things kinaesthetically. The kinaesthetic sense is defined by the flow of relations, not by sensations of efforting the musculature. It is experienced in qualities of connection, in motion, change and growth. We feel the action of the musculature that is close to the surface of the skin. But those muscles are responding to a deeper

motion within the core. When the direction for movement flows through the spine and outwards from the spine, people are often aware of an absence of the sensation of effort in the musculature. Feelings of lightness and ease, of the lack of limitation, replace dutiful conscious efforts to make the parts work. This is a starting place for directing your energy toward your heart's desire.

The qualities that inhere in my teaching come from my experience in the worlds of music and dance. I was not drawn to the modes of teaching based on the transmission of data in a standardized format with preset goals and predictable outcomes. It was through my Alexander Technique training with James Howell that I came to understand the richness of the experience of teaching.

Studying, playing, and performing music, and later dance, were the areas in which I found the rich, creative, and expressive environment in which I thrive. In the theatrical space I found a sense of mystery and excitement, the feeling of energy ready to shape magical worlds through story. I experienced the space as expectant and inviting of connection and shared experience among performers and audience, and I found a light-hearted joy in the creative openness and sense of anticipation.

The space in which movement is experienced is both metaphoric and tangible for me. The experience of being in a theatre space is akin to my experience of and my relationship to inner space. It is a dimensional world defined by the kinaesthetic sense; a realm of movement, balance and interconnections; a space where my

imagination interacts with my physiology, my habits (history), and my desire and capacity for self-expression and learning. I experience the space that is created by my interaction with a student as having similar qualities to inner and theatrical spaces: history; unexplored possibilities; interaction; creativity in discovering expressions of "self" that magnify and expand capacity; the pleasure of releasing energy to move and enliven the body/mind; and the surprise and sense of magic in an unexpected redirection along a new path.

Discovery

I work with a process that is intrinsic to the movement of animals.
Like us.
We're all so much alike, we
eukaryotes, assemblages of curiosity and cooperation,
unpredictable and habitual--creators of a moveable home base. . .

To know this pattern is like stepping into the middle of a fractal:
each direction on the scale--smaller, larger or at the same dynamic-
expresses the same qualities. But
to find it the rational Sherlock Holmes
would need to call in the Baker Street Irregulars.

It takes an ability to skirt the cultural construction project,
and think like a cat.
To pay attention to what's going on
and still satisfy your desire for ease and a good stretch
of the imagination. . .

Like the expression of the Fibonacci sequence in nature,
we are theoretical and concrete.
At the inception of an idea, in the moment of choice
we are omnipotent: but still inclined to the mundane,
not realizing our capacity, transfixed by predictability.

Only remember to notice the tide of movement in the spine,
and wait for the right wave when everything comes together
like Papillon did.
Experience the exhilaration of finding yourself
carried away.

Bibliography

Aarts, H. & Dijsterhuis, A. (2000). Habits as knowledge structures: Automaticity in goal-directed behavior. *Journal of Personality and Social Psychology*, 78, 53-63.

Alexander, F.M. (1918). *Man's supreme inheritance: Conscious guidance and control in relation to human evolution in civilization.* London: Methuen & Company Limited. (Original work published in 1910).

Alexander, F.M. (1923). *Constructive conscious control of the individual.* New York: E.P. Dutton & Company.

Alexander, F.M. (1932). *The use of the self.* New York: E.P. Dutton & Company.

Alexander, T.M. (1987). *John Dewey's theory of art, experience, and nature: The horizons of feeling.* Albany, NY: State University of New York Press.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York: Wilt Freeman and Company.

Bargh, J.A. & Pratto, F. (1986). Individual construct accessibility and perceptual selection. *Journal of Experimental Social Psychology*, 22, 293-311.

Bargh, J.A. (1997). The automaticity of everyday life. *Advances in Social Cognition*, 10, 1-61.

Bargh, J.A. (1999). Conditional automaticity: Varieties of automatic influence in social perception and cognition. In J.S. Uleman & J.A. Bargh (Eds.), *Unintended thought* (pp.3-51). New York: The Guilford Press.

Bargh, J.A. & Chartrand, T.L. (1999). The unbearable automaticity of being. *American Psychologist*, 54, 463-479.

Baumeister, R.F. & Sommer, K.L. (1997). Consciousness, free choice, and automaticity. In R.S. Wyer, Jr. (Ed.), *Advances in Social Cognition* (Vol X, pp. 75-81). Mahwah, NJ: Erlbaum.

Bayles, D. & Orland, T. (1993). *Art and fear.* Santa Barbara: Capra Press.

Ben-Or, N. (1995). The Alexander Technique. In C. Grindea (Ed.), *Tensions in the performance of music* (pp.84-95). London: Kahn & Averill.

Busoni, F. (1962). Sketch of a new esthetic of music. *Three classics in the aesthetic of music* (pp. 75-101). New York: Dover Publications Incorporated. (Original work published in 1911).

Camic, C. (1986). The matter of habit. *American Journal of Sociology,* 91, 1039-1087.

Dearborn, G.V.N. (1913). Kinesthesia and the intelligent will. *American Journal of Psychology,* 24, 204-255.

Deleuze, G. (1985). Active and reactive. In D.B. Allison (Ed.), *The New Neitzsche* (pp. 80-106). Cambridge, Mass: MIT Press.

Dewey, J. (1930). *Human nature and conduct: An introduction to social psychology.* New York: Random House. (Original work published in 1922).

Dewey, J. (1972). The reflex arc concept in psychology. In J.A. Boydston & F. Bowers (Eds.), *John Dewey: The early works, 1882-1898* (Vol 5, pp. 96-109). Carbondale: Southern Illinois University Press. (Original work published in 1896).

Dewey, J. (1981). Experience and nature. In J.A. Boydston, P. Baysinger & B. Levine (Eds.), *John Dewey: The later works, 1925-1953* (Vol 1). Carbondale: Southern Illinois University Press. (Original work published in 1929).

Doll, W.E. (1993). *A post-modern perspective on curriculum.* New York: Teachers College Press.

Francoz, M. J. (1999). Habit as memory incarnate. *College English,* 62, 11-29.

Havas, K. (1995). String Playing. In C. Grindea (Ed.), *Tensions in the performance of music* (pp.13-27). London: Kahn & Averill.

Hergenhahn, B.R. & Olson, M.H. (2000). *An introduction to theories of learning, (sixth edition).* Upper Saddle River, New Jersey: Prentice Hall, Incorporated.

Hull, C.L. (1931). Goal attraction and directing ideas conceived of as habit phenomena. *Psychological Review,* 38, 487-506.

Huxley, A. (1937). *Ends and means.* London: Chatto & Windus.

Isen, A.M. & Diamond, G.A. (1999). Affect and automaticity. In J.S. Uleman & J.A. Bargh (Eds.), *Unintended thought* (pp. 124-152). New York: The Guilford Press.

James, W. (1981). Habit. In F.H. Burkhardt, F. Bowers & I.K. Skrupskelis (Eds.), *The works of William James* (Vol 1, pp.109-131). Cambridge, Mass: Harvard University Press. (Original work published in 1887).

Kahneman, D. & Treisman, A. (1984). Changing views of attention and automaticity. In R. Parasurman & D.R. Davies (Eds.), *Varieties of attention* (pp. 29-61). Orlando, Florida: Academic Press Incorporated.

Landowska, W. (1965). *Landowska on music.* Denise Restout (Translator, Editior). New York: Stein and Day.

Langer, E.J. (1997). *The power of mindful learning.* Reading, Mass: Addison-Wesley Publishing Company.

Levine, P.A. (1997). *Waking the tiger--healing trauma.* Berkeley, California: North Atlantic Books.

Lionni, P. (1980). *The Leipzig connection: The systematic destruction of American education.* Sheridan, Oregan: Delphian Press.

Maisel, E. (1986). *The resurrection of the body: The essential writings of F. Matthias Alexander.* Boston: Shambala Publications.

Margulis, L. & Sagan, D. (1997). *Slanted truths: Essays on gaia, symbiosis, and evolution.* New York: Copernicus, Springer-Verlag New York Incorporated.

Merleau-Ponty, M. (1989). *Phenomenology of perception.* Colin Smith (Translator). London: Routledge. (Original work published in 1962).

Ouellette, J.A. & Wood, W. (1998). Habit and intention in everyday life: The multiple processes by which past behavior predicts future behavior. *Psychological Bulletin*, 124, 54-74.

Peace, B.C. (2001). *Kyrie.* Victoria, British Columbia: Sono Nis Press.

Petty, R.E., Wells, G.L., Heesacker, M., Brock, T.C. & Cacioppo, J.T. (1983). The effects of recipient posture on persuasion: A cognitive response analysis. *Personality and Social Psychology Bulletin*, 9(2), 209-222.

Posner, M.I. & Rothbart, M.K. (1999). Intentional chapters on unintended thoughts. In J.S. Uleman & J.A.Bargh (Eds.), *Unintended thought* (pp. 450-466). New York: The Guilford Press.

Robinson, J.H. (1919). The philosopher's stone. *Atlantic Monthly*, 123, 474-481.

Schneider, W., Dumais, S.T. & Shiffrin, R.M. (1984). Automatic and control processing and attention. In R. Parasurman & D.R. Davies (Eds.),*Varieties of attention* (pp. 1-27). Orlando, Florida: Academic Press Incorporated.

Shaw, B. (1955). Preface to London Music in 1888-89 as heard by Corno di Bassetto. In E Bentley (Ed.), *Shaw on music: A selection from the music criticism of Bernard Shaw* (pp. 1-31). Garden City, New York: Doubleday Anchor Books. (Original work published in 1934).

Skinner, B.F. (1974) *About behaviorism.* New York: Alfred A. Knopf.

Skinner, B.F. (1978). *Reflections on behaviorism and society.* Englewood Cliffs, NJ: Prentice-Hall, Incorporated.

Tinbergen, N. (1974). *Ethology and stress diseases: An examination of the Alexander Technique.* Champaign, Illinois: North American Society of Teachers of the Alexander Technique.

Van Ness, P.H. (1991). Pascal on habit: Spiritual discipline as the practice of paradox. *Philosophy Today*, 35, 402-412.

Watson, J.B. (1913). Psychology as the behaviorist views it. *Psychological Review*, 20, 158-177.

Watson, J.B. (1919). *Psychology from the standpoint of a behaviorist.* J.P. Lippincott Company.

Watson, J.B. (1959). *Behaviorism.* Chicago: The university of Chicago Press. (Original work published in 1930).

Weiner, S.E. (1990). "Inhabiting" in the phenomenology of perception. *Philosophy Today*, 34, 342-353.

Wundt, W. (1977). Lectures on human and animal psychology. In D. Robinson (Ed.), *Significant contributions to the history of psychology 1750-1920 (Vol 1).* Washington: University Publications of America. (Original work published in 1894).

Appendix

Bernard Shaw, who studied with F.M.Alexander, wrote about Alexander and Pavlov in 1937:

Here I must digress for a moment to point a moral. Years after I learnt how to sing without spoiling my voice and wrecking my general health, a musician-reciter (Matthias Alexander aforesaid) found himself disabled by the complaint known as clergyman's sore throat. Having the true scientific spirit and industry, he set himself to discover what it was that he was really doing to disable himself in this fashion by his efforts to produce the opposite result. In the end he found this out, and a great deal more as well. He established not only the beginnings of a far reaching science of the apparently involuntary movements we call reflexes, but a technique of correction and selfcontrol which forms a substantial addition to our very slender resources in personal education.

Meanwhile a Russian doctor named Pavlov devoted himself to the investigation of the same subject by practising the horrible voodoo into which professional medical research had lapsed in the nineteenth century. For a quarter of a century he tormented and mutilated dogs most abominably, and finally wrote a ponderous treatise on reflexes in which he claimed to have established on a scientific basis the fact that a dog's mouth will water at the sound of a dinner bell when it is trained to associate that sound with a meal, and that dogs, if tormented, thwarted, baffled and incommoded continuously, will suffer nervous breakdown and be miserably ruined for the rest of their lives. He was also able to describe what happens to a dog when half its brains are cut out...

[Biology professors] absurdly infer that the pursuit of scientific knowledge: that is, of all knowledge, is exempt from moral obligations, and consequently that they are priviledged as scientists to commit the most revolting cruelties when they are engaged in research.

Their next step in this crazy logic is that no research is scientific unless it involves such cruelties. With all the infinite possibilities of legitimate and

kindly research open to anyone with enough industry and ingenuity to discover innocent methods of exploration, they set up a boycott of brains and a ritual of sacrifice of dogs and guinea pigs which impresses the superstitious public as all such rituals do. Thereby they learn many things which no decent person ought to know; for it must not be forgotten that human advancement consists not only of adding to the store of human knowledge and experience but eliminating much that is burdensome and brutish. Our forefathers had the knowledge and experience gained by seeing heretics burnt at the stake and harlots whipped through the streets at the cart's tail. Mankind is better without such knowledge and experience.

If Pavlov had been a poacher he would have been imprisoned for his cruelty and despised for his moral imbecility. But as Director of the Physiological Department of the Institute of Experimental Medicine at St. Petersburg, and Professor of the Medical Academy, he was virtually forced to mutilate and torment dogs instead of discovering the methods by which humane unofficial investigators were meanwhile finding out all that he was looking for.

The reaction against this voodoo is gathering momentum; but still our rich philanthropic industrialists lavish millions on the endowment of research. . . . I am sorry to have to describe so many highly respected gentlemen quite deliberately as fools and scoundrels; but the only definition of scoundrelism known to me is anarchism in morals; and I cannot admit that the hackneyed pleas of the dynamiter and the assassin in politics become valid in the laboratory and the hospital, or that the man who thinks they do is made any less a fool by calling him a professor of physiology.

I should add that there is no reason to suppose that Pavlov was by nature a bad man. He bore a strong external resemblance to myself, and was well-meaning, intelligent, and devoted to science. It was his academic environment that corrupted, stultified, and sterilized him. If only he had been taught to sing by my mother no dog need ever have collapsed in terror at his approach; and he might have shared the laurels of Alexander.

(Shaw, 1955, pp. 17-20)