

RESOURCE PAPER FOR DANCERS AND TEACHERS

Somatics Studies and Dance

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1. INTRODUCTION

“I think, therefore I move” Thomas Hanna

Since the 1970s, a growing number of dancers have sought additional training in mind-body techniques loosely called “somatic studies,” or simply, “somatics.”¹ Once considered esoteric and far removed from daily technique class, somatics is now a household word in a dancer’s training. University dance programs worldwide now offer substantive somatic studies² and degree programs,³ and community studios offer extensive study and certification in various practices.^{4,5}

2. HISTORY

Somatic studies also have been referred to as body therapies, bodywork, body-mind integration, body-mind disciplines, movement awareness, and movement (re) education.⁶ The origins of western somatic education are rooted in a philosophical revolt against Cartesian dualism.^{7,8} In the European Gymnastik movement of the late 19th century, for example, somatic pioneers Francois Delsarte, Emile JaquesDalcroze, and Bess Mensendieck sought to replace the reigning ideology of rigor in physical training with a more “natural” approach based on listening to bodily cues arising from breath, touch, and movement.⁹

In 1970, philosopher and Feldenkrais practitioner Thomas Hanna coined the term “somatics” from the Greek word “soma,” meaning “the body in its wholeness.”⁸ Humanistic psychologists at that time were challenging the notion that the mind provides the only valid content for experience, one trend which gave impetus to the birth of the “human potential” and “holistic health” movements throughout the 1970s.⁶ Advocates valued the unity of mind, body, and spirit as fundamental to the human organism and one’s inner, personal narrative and experience as a guide for living.¹⁰ Bodily movement offered a whole new language of consciousness and body wisdom through self-awareness and self-guidance.¹⁰ Western somatic practitioners who pioneered their work in the early part of the 20th century evolved their practice by closely observing their own body signals and movement behavior. Examples include Elsa Gindler (body psychotherapy), Gerda Alexander (Eutony), and F.M. Alexander (the Alexander Technique).¹¹ Modern dance also was coming into its own during this time in an attempt to forge a more democratic and autonomous way of moving. Other movement educators quickly surfaced, including Mabel Todd and Lulu Sweigard (Ideokinesis), Charlotte Selver (Sensory Awareness), Moshe Feldenkrais (The Feldenkrais Method®), and, later, Bonnie

Bainbridge Cohen (Body-Mind Centering®). Movement awareness was the stimulus that spawned an array of somatic practices, with over 100 contemporary body-mind practices in existence today (above and beyond ancient practices, such as yoga, tai chi, and chi gong).¹² Two main avenues of physical practice evolved: one more 'receptive' (e.g., massage, craniosacral therapy, and somato-emotional release), and one more active, calling for the conscious cooperation of the person through movement awareness or imagination as catalysts for changing motor/movement behavior (e.g., Ideokinesis, Alexander Technique, and The Feldenkrais Method®).

The dance world began to take serious interest in somatic education with the Dance Magazine series in 1980 on "the Body Therapies" authored by Martha Myers.¹³ Myers spent many summers bringing together dancers, scientists, and somatic practitioners at the American Dance Festival for dialogue and experimentation with four major body therapies – Sweigard Ideokinesis, Alexander Technique, The Feldenkrais Method, and Bartenieff Fundamentals.* Dance curricula began to include more guided exploratory practices – structured movement lessons where sensory awareness of anatomical relationships were designed to improve coordination, such as Irene Dowd's "kinesthetic anatomy" courses and Bartenieff Fundamentals. These more embodied approaches added a whole new dimension to body investigation (body-as-content)¹⁴ beyond studies in classical sciences of anatomy, kinesiology, and biomechanics. The twentieth century also was characterized by more porous boundaries within dance education, with influences from Contact- and other forms of improvisation, Skinner Release Technique and other forms of "Release" work (e.g., Trisha Brown-derived), ethnic dance, martial arts, and circus performance, to name a few. Not only unique solo and collaborative movement explorations, but also imagery, touch, voice, music, and even technology, could become the primary creative stimulus for helping expanding the arena of mind-body (and therefore dance) training. While many movement studies now fall under the somatic umbrella, it is important to clarify key concepts and principles that date back to the origins of the movement.

3. KEY CONCEPTS

Somatic education differs first from traditional dance pedagogy in its philosophical basis – that of dismembering mind-body dualism in pursuit of personal autonomy.⁶ "Self awareness, self-control, and the active application of the will to the processes of growth and development are the major themes of this education."^{15, p. xxx} This philosophical shift

had a profound impact on practice. Key elements of somatic training include: (1) Novel Learning Context, (2) Sensory Attunement, and (3) Augmented Rest.¹⁶

NOVEL LEARNING CONTEXTS

Somatic learning contexts usually remove dancers from the typical space-time-effort constraints and psychological demands of a dance class. A somatic learning environment often begins by quieting the mind-body “chatter” in order to focus attention on the body’s sensory stimuli (from breath, muscle tension, contact of the body with the floor, etc.). The general tenor of the somatic learning environment is one of personal exploration, self-acceptance (i.e., absence of self-correcting strategies such as muscularly “fixing” what seems wrong), and non-competitiveness. Instead of striving to perform the “right” or “correct” movement, the dancer learns to move from an embodied source – fully receptive and responsive to the moment of movement. Such training is designed to free the dancer from rigid holding patterns or other constraints that bind thought, feeling, and action.

More

time is given to opening a space for pausing and reflecting. By broadening the intervals between sensing and moving (e.g., by slowing down), dancers can explore prolonged periods of attending to and exploring sensory feedback arising from stillness and movement in an atmosphere freed from goal-directed effort.

The somatic learning context is designed to help refinement of muscular effort. Theoretically, the effort felt in a movement is not a measure of the actual work being done, but an expression of the organization of the effort.¹⁷ These more restful contexts help dancers discover maladaptive postural and movement habits, patterns that go by unnoticed under usual dancing conditions. As one authority states: “No matter how much I move myself around, my strongest tendency is to move in the same ways that I have always moved, guided by the same deeply seated postural habits, sensory cues, and mental images of my body.”^{15, p. xxvi} Sensory refinement enables dancers to discover how readily intentional goals trigger habitual muscular patterns arising in the first milliseconds of movement initiation, when the brain “sets” the body’s overall muscular tonus.¹⁸

SENSORY ATTUNEMENT

Somatic approaches emphasize sensory awareness (paying attention to sensing) over motor action (“doing”). In the somatic learning context, how one moves is more important than what the movement is.¹⁹ Giving dancers the opportunity to explore – and make sense of – inner sensations (neural signals) fosters “sensory authority,”¹ a baseline for

self-guidance and control. Sensory authority promotes movement autonomy¹⁴ (the capacity to self-organize movement internally), differing from common external references used in learning dance (e.g., teachers' cues or mirrors). While both somatics and dance share kinesthetic awareness as a common value, in somatics, kinesthetic awareness functions largely as a potent agent of change – a powerful means of altering habit. “Just as the mind organizes the rest of the body’s tissues into a life process, sensations to a large degree organize the mind. They do not simply give the mind material to organize; they are themselves a major organizing principle.”¹⁵, p. xxvi

AUGMENTED REST

A third key concept in somatic studies that distinguishes it from traditional dance training is augmented rest.²⁰ Practice (repetition for reinforcement) is a powerful training tool in dance, but is rarely counterbalanced with rest. Somatic studies commonly embed resting intervals between phases of physical activity. This high rest-to-activity ratio is designed to allow the nervous system time for processing and integration and physiological systems time to recover. The rest can be very brief (Alexander Technique’s pausing and inhibiting), brief (the typical 2 to 3 minute rest between repetition and variation in Feldenkrais Awareness Through Movement), fairly long (20 minutes or more of Ideokinetic Constructive Rest), or longer (a full night’s sleep). Somatic resting phases not only are employed as a strategy for physical recovery, however, but also for motor programming.²¹ Rest periods help consolidate memory (you’ll remember what you learned) and improve motor recall (you’ll more readily call it forth when you need it), as well as actual performance (you’ll do better next time).²¹ Constructive rest is a well-known practice of motor learning first described by Lulu Sweigard (Ideokinesis).²² The basic hook-lying position reduces the effect of gravity on the body and minimizes extraneous muscular effort and joint loading involved in habitual postural support. In this environment, dancers can visualize “lines of movement”²² that enhance neuromuscular coordination without additional physical effort. A minimum of a 10-20 minute constructive rest period is recommended to recuperate from a day of dancing, replenish physiological processes and restore energy depleted by physical activity while programming appropriate neuromuscular patterns within the brain.²² While repetition is essential in motor skill learning, mentally practicing (visualizing) motor patterns at rest – when combined with physical practice – is a more powerful combination in enhancing motor skill learning and performance, than just physical practice alone.²³

4.SOMATIC PRACTICES IN DANCE TECHNIQUE

Somatic practices that have been integrated readily into dance curricula include Ideokinesis, The Feldenkrais Method, Alexander Technique, and Body-Mind Centering.* All these methods share common goals in their approaches to re-education: (1) Process over goal-oriented product, that is, enhancing kinaesthetic awareness in a nonjudgmental and non-competitive, non-doing environment; (2) Using sensory awareness to modulate (i.e., constrain) movement range and effort to uncover the potential for new mobility, and (3) Rest – resting phases in which the dancer is given time to listen to the body, to clarify what sensations have arrived and differentiate wanted from unwanted stimuli, and to consolidate motor learning.

IDEOKINESIS

The legacy of Ideokinesis is a long one. The central concept involves visualizing motor imagery to alter injurious mechanical forces by programming neuromuscular patterns for improved alignment and mechanical balance. The Somatic Studies and Dance original motor imagery pioneers were Mabel Todd (*The Thinking Body*, 1937) and her protégés Barbara Clark (*Kinesthetic Legacy*, 1993) and Lulu Sweigard (*Human Movement Potential*, 1973). To paraphrase Todd: While you can never eliminate the stress of movement, you can reduce the strain. The idea of the mind's eye being able to alter potentially injurious movement forces (stress) to avoid injury (strain) was revolutionary, and paved the way for an approach to movement education that resulted in improved flexibility, coordination, agility, and expression. Sweigard, for example, evolved “nine lines of movement” that could be visualized in constructive rest to create better mechanical balance in upright standing posture.²² The key ingredient in Ideokinesis is visualizing the movement only with the mind's eye (either as movement within the body or in space), without any perceivable sensation of muscular effort. This primes neural pathways and reprograms unnecessary and unwanted muscular tensions.²²

For decades, Ideokinesis has influenced the language for learning and teaching dance. Another generation of dancers followed these original founders whose work surfaced during the 1970s to the 1990s: Irene Dowd, Andre Bernard, John Rolland, Nancy Topf, and others – dancers and movement education specialists who integrated Ideokinesis into dance training, expanding knowledge of posture and movement efficiency in technique and performance. Those still living continue to evolve this work while others forge new syntheses (e.g., Donna Krasnow and Eric Franklin).

Among the somatic approaches, Ideokinesis is the most substantiated by science: More than seven decades of sports psychology research have shown that visualizing a clear goal of an action readily coordinates the neuromuscular details of the movement (the muscular recruitment, sequencing, and timing and force requirements).²³ Physical practice combined with mental practice can lead to more improvement in motor performance and strength than either physical or mental practice alone. Further brain imaging technology reveals that mentally practicing a motor image utilizes the same brain regions as actual physical execution.²⁴ Visualization, then, is a powerful tool in linking mind and body in programming “right” (intended) action without excessive wear-and-tear on the body from physical practice.

THE FELDENKRAIS METHOD®

The Feldenkrais Method® is a movement-centered system of mind-body education and personal development. The work is designed to improve movement capability and freedom as well as to reduce pain or limitations in movement and improve general well-being. The Method is named after Israeli physicist and judo expert, Moshe Feldenkrais, who developed an experiential approach to self-organization through movement. Feldenkrais believed that movement was the “language” of the brain, and that awareness of movement was a potent ingredient in refining the body schema (the image of self and action in the brain).²⁵ The active movement component of this method, known as “Awareness Through Movement,” is a highly structured, verbally guided movement lesson. Here, persons are asked to attend to sensory feedback as they are guided through performing small-range movements in a comfortable setting (often lying down). The movements often are akin to those in a baby’s repertoire – where small-range, often idiosyncratic movements are explored in an effortless and playful manner with the goal of the movement achievement hidden. Movements ideally are performed slowly, easily, and quietly, below the threshold of perceived muscular effort. This is so that dancers can identify and differentiate degrees of muscular contraction that would promote a feeling of ease of movement accomplishment. The purpose of such a “playground” of movement is to disturb habitual movement patterns buried in the body schema. As the old habitual patterns begin to dissolve in an environment of ease and safety, new options for coordination become possible.²⁶ Occasionally, imagery is used as a foundation for body scanning and augmenting the body image, but the stronger element is the combination of effortless movement sequences balanced by an equal ratio of rest (allegedly for neurological processing and

consolidation of new learning). In a typical Feldenkrais ATM lesson, movement exploration rarely exceeds 3 minutes before a resting phase of at least 30 seconds is offered.

Today, the Feldenkrais work is best substantiated by tenets from Dynamic Systems Theory in which behavior is seen as dynamic and changeable through providing proprioceptively- rich environment of movement exploration and variation. Movement habits can change through introducing gentle sensory “perturbations” (nudges) that shake up the old order and allow for the experience of new movement potential to emerge.^{26,27}

ALEXANDER TECHNIQUE

Alexander Technique (AT) was named after F. Mathias Alexander (1869-1955) a Shakespearean recitalist who developed a method of “psycho-physical re-education” in response to coping with his own chronic, recurrent laryngitis. The AT is a user’s manual – a guide – on how to notice your way of moving in everyday and skilled activity.²⁸ The AT has no special physical or therapeutic exercises, no meditation – or other exercises in altered states of consciousness. Rather, the emphasis of the training is on learning to employ these principles in everyday personal “use.” Studying AT, dancers can move with greater ease, poise, and accomplishment, regardless of the movement style.

The AT most readily addresses postural control and balance, a complex neurological process with which we can interfere.^{29,30} The ideal standing posture for dance, for example, is often achieved by “pulling up”, involving excessive muscular effort. Commands to “pull in your ribs” or “tuck your tail under,” result in positional holding rather than consciously sensing and utilizing the body’s dynamic reflex system of support. Alexander discovered how to reorganize the postural support muscles of the torso (what he called the “head-neck-back” relationship), resulting in more balanced activation between the superficial muscles of the trunk (those needing to be free for large range movement) and the deeper muscles (those more responsible for postural Somatic Studies and Dance support). While the intention to find deeper muscular support for the moving body is similar to other somatic approaches, AT facilitates dynamic poised alignment and readiness for action by subtly different means.

The AT is an active process of conscious awareness engaged in everyday pedestrian (as well as skilled) movement, Dancers learn how to direct movement and modulate effort without visual imagery. Dancers attune to kinesthetic sensations that are not image-based, per se, more abstract sensations such as muscular tightening and pulling. The first

phase of learning this work is to notice sensations of muscular tension and pressure (directional pulls) in the body that indicate interference with inherent support mechanisms. FM Alexander called this step in the process the “Means-Whereby.” Once the triggering of these muscular reactions is sensed and identified, the question becomes how to alter them? Rather than correcting the problem by imposing additional muscular effort (e.g., if you have a sway back, tuck your tailbone under), FM Alexander discovered a process he called “Inhibition,” where [dancers] learn to recognize reactive patterns and poor movement habits, and to pause and consciously choose neither to “fix” them nor to allow them to happen (non-interference). Using the Alexander process of Inhibition, a dancer can pay exquisite attention to the movement without interfering with the inherent laws of coordination. The final step is Direction, a means by which dancers can clarify their thinking to ensure full spatial usage without unnecessary or unwanted effort.²⁹

BODY-MIND CENTERING

BMC is a system of body exploration in which all of the body’s anatomical systems are explored to bring awareness and meaning to the qualities of each tissue and of their power for body energy and support. The most physically “active” of the 4 somatic practices described here, BMC employs awareness not only of movement, but also of voice, breath, perceptions, and touch. Bonnie Bainbridge Cohen, an occupational therapist and Hawkins-trained dancer, began her explorations in the 1960s. She was influenced by Karl and Berta Bobath, the founders of neurodevelopmental therapy (NDT – a method of restoring developmental movement patterns in children with brain injuries) along with yoga, Laban Movement Analysis, dance therapy, and katsugen undo (a Japanese method of training the involuntary nervous system). The School for Body-Mind Centering (founded in 1973 in Amherst, Massachusetts) offers a creative, integrated approach to transformative experience through movement re-education and hands-on repatterning work designed to understand how the mind is expressed through the body and the body through the mind.³¹

The BMC learning environment ensures a space for nonjudgmental self-discovery and openness. Fundamentals of learning include developmental movement patterns (including cellular awareness and breathing) as a foundation for social, physical, and psychological growth and development, and an exploration of all the anatomical systems (circulatory, organs, endocrine, etc.). The certification program also requires students to study science and to integrate the training into other movement contexts.

5. FURTHER SUBSTANTIATION

The relatively new academic field of “embodiment”³² is a synthesis of many fields (biology, cognitive neuroscience, and phenomenology among them). Testifying to the importance of body narrative, embodiment scholars help substantiate ideas long thought integral to a dancer’s artistry and creativity, such as “kinesthetic resonance”³³ and “somaesthetics.”³⁴ Yet we need more formal research in somatic studies to continue to draw links between somatic and pedagogical practices to promote safe, effective, and expressive dance training. Early in the somatic movement, dance dipped its toe into these practices with caution, and to this day, somatics still is advocated only as an adjunct to more formal dance training. The challenge is for researchers to show the precise ways that somatic practices bear directly on improvement in technique and performance. Future “pioneers” will be those who take somatics to this next stage in the dance science literature.

6. STUDY AND CERTIFICATION

The International Somatic Movement Education & Therapy Association (ISMETA) promotes standards and professionalism within the field of somatics and offers certificates, health insurance options, and other resources for those choosing to become somatic practitioners. The website also offers a substantial Links page listing schools and programs (www.ismeta.org). If not enrolled in a formal academic degree program where somatic studies is emphasized, dancers can pursue deeper study in these methods in a variety of ways: (1) Become certified in any one particular method (2) Enroll in a more general degree- or certificate program at a school of somatic studies; (3) Become certified in more contemporary “fusion” approaches or schools; or (4) Mentor with a somatic practitioner.

7. FURTHER THOUGHTS

Finally, in looking at the history and impact of somatics, several other concerns come to mind. First, the origin, growth, and development of somatics did not evolve from western philosophy alone. Although coining the term ‘somatics’, Thomas Hanna was well-aware of the philosophical contribution of the ancient Far East.⁷ Both Moshe Feldenkrais and Bonnie Bainbridge-Cohen drew heavily from Asian disciplines in developing their work. Emilie Conrad D’Aoud drew from Haitian and African cultures in developing her work in Continuum movement. As we ponder the question of multiculturalism in somatics, a deeper one emerges: The integration of cultural histories and practices in the pursuit of a

personal – yet universal – set of principles of somatic training implies that somatic studies need to be viewed through the lens of a multi-cultural world. Personal body practices are grounded in specific sociological, cultural, and class contexts that are neither universal nor “neutral.”^{14,35} Sensitivity to one’s own cultural biases is important. As Don Hanlon Johnson states: “My Somatic Studies and Dance Somatic Studies and Dance body – its sensibilities, movement styles, reaction patterns, and health – is not simply an individual reality governed by its own biophysical laws and idiosyncratic effects of my personal history. I am also a result of the ideologies within which I move.”³⁶

Second, we do not live by – and for ourselves alone, neither as personal histories independent of our relationships, nor in relationship to our physical geography – the earth, where we live, where we came from, and all our connections to the land. The whole body is “ecological;” The Gaia Hypothesis is a living fact – providing literal and figurative fertile ground for somatic education.³⁸

Finally, the “whole body” also is “technological.” We readily incorporate cell phones, iPods, and other electronics into our body schema which impacts on the dancing body personally, somatically, socially, and aesthetically.³⁸ Somatics began as a ‘revolt’ against the scourges of an industrial age.⁷ How somatic studies can broaden its arms to embrace the reality of technology is yet to be seen.

*Note: Because of the constraints on length of this resource paper, certain key body education practices could not be covered in any depth, primarily Laban/Bartenieff.

8. ADDITIONAL RESOURCES

www.ideokinesis.com

www.feldenkrais.com

www.alexandertechnique.com

www.bodymindcentering.com

www.ismeta.org

9. REFERENCES

1. Green J. Somatics: A growing and changing field. J Dance Ed. 2002;2(4):113.
2. Example: <http://ucollege.wustl.edu/programs/certificates/somatic-studies>, accessed April 6, 2009.

3. Example: University of Colorado Department of Theater and Dance
<http://www.colorado.edu/TheatreDance>, accessed
April 6, 2009.
4. Example: www.somaticmovementstudies.org, accessed April 6, 2009.
5. Example: www.movingoncenter.org, accessed April 6, 2009.
6. Eddy MH. Dance and somatic inquiry in studios and community dance programs. *J Dance Ed.* 2002; 2:119-127.
7. Hanna T. *Bodies in Revolt: A Primer in Somatic Thinking*. New York: Holt Reinhart, 1970.
8. Johnson DH. www.donhanlonjohnson.com, Accessed November 23, 2008.
9. Galeota-Wozny N. Somatics 101. *Dance Mag.* July 2006.
10. Hanna T. *Somatics: Reawakening the Mind's Control of Movement, Flexibility, and Health*. New York: Perseus Books, 2004.
11. Johnson DH. *Bone, Breath, & Gesture: Practices of Embodiment*. Berkeley, CA: North Atlantic Books, 1995.
12. Knaster M. *Discovering the Body's Wisdom*. New York: Bantam Books, 1996.
13. Myers M. Body therapies and the modern dancer. *Dance Mag.* Mar, Apr, May, July, 1980.
14. Green G. Somatic knowledge: The body as content and methodology in dance education. *J Dance Ed.* 2002; 2:113-118.
15. Juhan D. *Job's Body: A Handbook for Bodywork*. Barrytown, NY: Station Hill Press, 1998, pp. xxx and xxvi.
16. Berardi G. Mind Matters: Somatics is a growing trend in dance training. *Dance Mag.* May, 2007.
17. Feldenkrais M. Bodily expression. *Somatics.* 1988;4:52-59.
18. Libet B. *Mind time: The Temporal Factor in Consciousness*, Cambridge, MA: Harvard University Press, 2004.
19. Batson G. Revisiting overuse injuries in dance in view of motor learning and somatic models of distributed practice. *J Dance Med Sci.* 2007; 11(3):70-76.
20. Batson G, Schwartz RE. Revisiting the value of somatic education in dance training through an inquiry into practice schedules. *J Dance Ed.* 2007; 7(2):47-56.
21. Schmidt RA, Lee T. *Motor Control and Learning: A Behavioral Emphasis*. 4th Ed. Champaign, IL: Human Kinetics Press, 2005.

22. Sweigard L. *Human Movement Potential: Its Ideokinetic Facilitation*. New York: Dodd-Mead, 1974.
23. Murphy SM, Nordin SM, Cumming J. Imagery in sport, exercise and dance. In: Horn T (Ed.), *Advances in Sport Psychology* (3rd ed.). Champaign, IL: Human Kinetics, 2008.
24. Decety J. Do imagined and executed actions share the same neural substrate? *Brain Res Cogn Brain Res*. 1996; 3(2):87-93.
25. Feldenkrais M. *The Elusive Obvious*. Cupertino, CA: Meta Publications, 1981.
26. Buchanan PA, Ulrich L. The Feldenkrais Method: A dynamic approach to changing motor behavior. *Res Q Exer Sport*. 2001; 72:315-323.
27. Reese M. *The Feldenkrais Method and Dynamic Systems Theory*. www.feldenkraistrainingprograms.com/Articles/Reese_Thelen.pdf. accessed, December 3, 2008.
28. Brennan R. *The Alexander Technique Manual*. Boston: Little, Brown and Co., 1999.
29. Alexander FM. *The Use of the Self*. London: Orion Books, 1932.
30. Cacciatore T, Horak FB, Henry SM. Improvement in automatic postural coordination following Alexander Technique lessons in a person with low back pain. *Phys Ther*. 2005; 85:565-578.
31. Bainbridge-Cohen B. *Sensing, Feeling, and Action*. Northampton, MA: Contact Editions, 1993.
32. Varela F, Thompson E, Rosch E. *The Embodied Mind: Cognitive Science and Human Experience*. Cambridge, MA: MIT Press, 1992.
33. Reynolds D. *Rhythmic Subjects: Uses of Energy in the Dances of Mary Wigman, Martha Graham, and Merce Cunningham*. London: Dance Books, Ltd., 2007.
34. Schusterman R. *Body Consciousness: A Philosophy of Mindfulness and Somaesthetics*. Cambridge, MA: Cambridge University Press, 2008.
35. Eddy M. Somatic practices and dance: Global influences. *Dance Res J*. 2002; 34:46-62.
36. Johnson DH. *Body: Recovering our Sensual Wisdom*. Berkeley, CA: North Atlantic Books, 1993.
37. Olsen A. *Body and Earth: An Experiential Guide*. Lebanon, NH: Middlebury College Press, 2002.
38. Kolcio K. A somatic engagement of technology. *Intl J Performance Art Dig Media*. 2005; 1(2):101-126.