

Appendix A: Prior Research Leading to the Current Question – Resources and Premises

As a dance artist, I am interested in how the entire human experience of learning, being and communicating happens through the body. Everything we know depends upon sensing, perceiving and interacting with our environment – an act of engaging with a stream of information from the external world that passes into our consciousness through the body and that requires attention to lived bodily experience as a gateway to learning about our material and social habitat. We understand that the bark of a certain tree is hard and rough because we see it with our eyes and we feel it with our fingers. When we go places, our body transports us or we must find a way to take it with us. We understand the weather according to the temperature the environment produces in our body.

Embodiment: Being a Body

Over the past two decades, a great deal of attention has been given to the body and to the term embodiment. Betty Block and Judith Lee Kissell suggest, “Embodied knowing is the ability to interact with a thought or an experience holistically that involves the integrated power network of the total person. The integrated power network includes neural elements, efforts, memory, language, perception and attunement and are found integrated throughout the body, not just in the brain” (2001, p. 6). Bonnie Bainbridge Cohen explains embodiment in terms of an infant who, after some time of waving its hand over its face, begins to open a new sense of knowing that “this hand is *me*...” Embodiment, Cohen says, “is in a way, a separating out. It’s feeling the force that is in this body” (1993 p. 63). I agree that living as an embodied being includes recognizing the self as a more than just having a body, but being a body, experiencing the body as an integrated component of the self – this hand is me, this foot is me, the way I move is me.

Embodied Self, Embodied Mind

Our psychological component, who we believe ourselves to be, manifests itself clearly in the body in the form of posture, movement and body language. How we walk, how we hold a glass

of juice, how we sit, how we respond to loud noises, how we make love, and so on represent the expression of our mind through the body. Then, why isn't the mind located throughout the body rather than centered only in the brain? Some believe that even memories can be stored in various parts of the body. Think of sucking a lemon. Can you not taste the sharp sourness and feel the clenching response in your jaw muscle? When I think of hugging my father, my arms and chest understand and literally feel the warmth and comfort of his supportive embrace.

Sensing and Seeing – Internal Eyes

In the field of dance, we engage in the art of investigating and developing the continuum of what Dyer labels, the *intrinsic of sensing* and the *extrinsic of seeing* (2009). During moments of intrinsic sensing, movers literally and physically sense and perceive what is happening in and to the body. The notion of extrinsic seeing cannot be defined as an activity of the eyes; rather we engage in extrinsic seeing when our mind's eye witnesses what our body is doing. For example, if we think of lengthening our spine, we can both physically perceive the elongation of our vertebral column; but somehow, we also *see* this lengthening happening inside the body and through space. We see this lengthening in our brain, in the conventional location of the mind behind the eyes, yet we also see this lengthening happen *at the site of action* – at the vertebral column and surrounding tissues and in the space that the lengthening vertebral column moves into. During moments of integrated consciousness, we simultaneously engage in the intrinsic of sensing and extrinsic of seeing (Dyer, 2009). Of course, the shifting continuum and then integration of intrinsic sensing and extrinsic sensing is not limited to dancing and dancers. We carry out these activities of embodied understanding of our moving selves at all times, whether consciously or unconsciously.

Movement as First Perception

While the body serves as major source of knowledge for self-discovery and development, movement of the body serves as our first and foremost perception, placing movement and bodily perception as our primary mode of learning, before we begin to learn through our other exteroceptive, more conventionally accepted senses of touch, taste, sight, smell, and sound. Cohen

provides fascinating scientific evidence of movement as a first perception, in that the fetus' first nerves to myelinate (develop a fatty, protective covering) are the vestibular nerves (1993). The vestibular system includes proprioceptors and kinesthetic receptors – special nerve receptors in the bones, joints, ligaments, muscles and fascia that explain the position of the body in space. Also included in the vestibular system are the interoceptors, which explain the location and activity of the organs, glands, vessels, and nerves. Lastly, the vestibular system includes the vestibular mechanism located in the inner ear which receives information from the proprioceptors, kinesthetic receptors, and interoceptors, as well as gravity, space, and time in order to synthesize where the body is and what it is doing at all times (Cohen, 1993). The fact that vestibular nerves myelinate first indicates these nerves as most essential for survival while supporting the theory of movement as a primary perception in utero.

Kinesthesia as a Valid Sensory Modality and Epistemological Gateway

The importance of movement perception as a primary mode of learning for the infant does not stop throughout growth and development into adulthood. We continue to use the movement not only to understand ourselves, but also the world. Jaana Parviainen states, “Through our kinaesthetic consciousness we constitute ourselves as epistemological subjects” (2002, p. 14). Despite a western emphasis on the five senses of sight, smell, taste, sound, and touch, we constantly learn about the world through bodily sensations and how we must move in order to interact with external objects. When we stand on a hill, do we not learn of our situation on a hill along with the properties of a hill according to changes in how we experience gravity? When we sit in a chair, do we not learn about the chair's shape, purpose, and stability according to how we must move and shape our bodies in relation to it?

Kinesthetic Empathy: Processing and Coming to Know Through Embodied Understanding

Furthering the notion of kinesthetic consciousness serving as an epistemological source of knowledge, I question how we understand our environment through identifying surrounding materials with internal physical sensations: I understand and respond to a cascading water fountain

according to the wetness inside of my mouth and the full, heaviness of my bladder; the structure of a concrete building resonates differently in my bones than in my muscles; the awareness of my own visceral organs evokes feelings biological community when I walk among other humans and animate beings. This mode of experiential learning through the living body precedes and underwrites all other modes of cognition and we must recognize learning as more than a cognitive process of the brain, or even of a mind rooted in the brain. Rather, we must become conscious of kinesthetic and experiential perceptions that happen through the body as sources of knowledge, while also developing sensitivity to the workings of the mind throughout the entire living organism.

Conclusion: Embodied Knowing as the Underwriter of All Cognition

If the proprioceptive facilities of the vestibular system develop before the systems that enable other sensory modalities (sight, sound, taste, smell, touch), then we can deduce that coming to know about the world through these other systems depends upon a primary epistemological process that takes place first through embodied knowing. To know means to understand where we are emplaced in reference to this knowledge. While our relationship to knowledge does not always signify a physical reference point, what we do know always takes place within our self and it is within our self that we first must find emplacement. To know where we exist requires first that we recognize the self as our only reference point. Living as a self means living as a body. If knowing through the body foregrounds our other senses through which we know about the world and if our primary point of reference exists as an emplacement in this embodied self, then we find that embodied knowing serves as the underwriter for all modes of cognition.

Social Construction of Movement Meaning and Motor Abilities

Complicating the notion of movement as the first perception and the genesis of cognition is the social construction of movement meaning. Phenomenological theories that investigate the realm of socially shared knowledge prove relevant to the field of dance in that the meanings associated with movement result from socioculturally collaborative agreements and co-creations. For dancers, movement meaning serves as a vital medium through which they invest in the art of representing,

questioning, manipulating and challenging socioculturally shared norms and aesthetics of embodiment.

Movement as an Extension Tool For Individual Expression

Moore and Yamamoto (1988) relate movement to tools and instruments as extension systems that grant users the capability of extending their physical capacity to actualize an inner intent. Like a handsaw that extends a carpenter's physical ability to cut materials, a bicycle that grants the rider his desire to propel swiftly through space, or a chemistry equation that materializes a scientist's understanding of a molecular formula, movement provides the function of extending an individual's inner intentions of action and expression – if want an apple, I reach out with my arm and grab it with my hand; if I hear a funny joke, I hold my stomach and ball over with joyous laughter.

Interestingly – and in light of Cohen's assertion of movement perception foregrounding cognition – despite the transient, elapsing nature of movement when compared to the more concrete and tangible qualities of conventionally recognized tools (handsaw, bicycle), movement serves not only as an extension of human intention, but also as our *first* evolutionary extension system (Moore & Yamamoto, 1988). The role of the sense organs, such as the mouth, lips and hands, as purposeful for allowing the world to extend into the human being's inner psycho-physical domain evolved to include the reciprocal role of manipulating and playing with the external world to produce a desired outcome (Moore & Yamamoto, 1988).

Movement as an Extension Tool for Culturally Shared Meaning

According to Moore and Yamamoto, while movement represents an extension system for the individual to translate personal intentions into material action, this tool also ties into an encircling web of cultural extensions. Human kind's prehistoric ancestors evolved extension systems through shifts of first using the body to manipulate the external material world, then extending the ego through “manipulating hands...searching eyes...the scope of his restless brain,” and finally arriving to create an extension system that expresses socially-shared knowledge through movement (1988, quoting LaBarre, p. 72). As our prehistoric ancestors repetitively engaged in

movements that extend capabilities of survival or enjoyment, the discovery of movement as a social function effective for symbolic communication prompted the ritualization of movement into a shared, communal knowledge and practice (Moore & Yamamoto, 1988). For this reason, most Americans know that an extended right hand might mean the initiation of a formal relationship, a clenched fist thrust overhead probably proclaims victory, and dance movements executed with spatial directness may signify a dancer's confidence and motivation.

Social Constructions of Movement Motor Abilities

While we can clearly recognize that the meanings of gestures and body attitudes arise from social transmissions of knowledge and are shared among individuals within a cultural group, research also suggests that social influence reaches even deeper into biological processes of human motor development. Not only do we learn from society the meanings of movement, we need other humans in order learn how to move at all. Carol-Lynne Moore and Kaoru Yamamoto explain how, unlike other animals, the human brain triples in size during the first year after birth (1988). Also contrary to other animals, the parts of the brain and central nervous system that control voluntary movement develop *after* birth (Moore and Yamamoto, 1988). While animals enter the world with a neuronally hard-wired, instinctual knowledge of how to move, humans arrive with only basic reflexes that predispose us to the capacity to eventually move as a human (Moore and Yamamoto, 1988). When it comes to knowing how to move and to the meanings we attach to movement, the human infant's brain exists as socially malleable and almost literally shaped by members of the individual's social group. I do not mean to suggest that the influence of society on motor skills and movement meanings results in individuals who do not live as subjective beings incapable of learning and making meaning for themselves. Rather, I think that we cannot deny the intersubjectivity of individuals as we guide each other along the path of learning to become human.

Appendix B: Sensation into Perception – Questions of When and Where

Although I adopt Cohen's assertion that sensation and perception occur as separate experiences, I am unclear about exactly where the distinction between the two can be made. If an awareness of sensation equates perception, as a conscious human being any awareness of sensation yields some sort of meaning, however keenly or vaguely loaded it may be with emotional response or concepts of identity. Even as I sit on a carpeted floor with my legs long in front of me, crossed and hitched together into a single linked unit by my ankles, I can bring my awareness to the seam of sensation running the length of connectivity between my lower extremities – I have already identified a great deal of meaning associated with this sensation in locating it along the *length of my legs* and produced from the *crossing of my ankles*. I could provide even deeper, more subtle and tacit associations I make in perceiving my legs bound together. For example, the friction between my legs and ankles creates heat reminding me of the hot climate where I live, I might feel that the heat between them feels nice or uncomfortable, this warm experiential perception of my legs arouses awareness of my sexual nature, and so on. So, where in this process did sensation ever actually occur? Does it happen tacitly, such as the feeling of my legs against the floor – if I pretend that writing about the sensation of my legs against the floor does not bring my awareness to it at all, do the sense organs, then, work without the involvement of awareness? The sensation must be happening or I could not know that I am sitting on the floor. Perhaps a tacit awareness of unconsciously inferred information represents an example of sensation yet to become perception. To elucidate my point in discussion, if the awareness of a bodily experience, to any degree of vivacity, receives the term perception, and if all bodily perceptions are comprised of meaning, regardless of the definition or intensity of this meaning, and lastly, if we live not with a body, but as a body, then we exist uninterruptedly and holistically as perceptively embodied beings. This leaves me open to question whether or not we can actually distinguish sensation from perception.

Appendix C: Bartenieff Fundamentals

Currently I draw from Irmgard Bartenieff's development of movement Fundamentals as a resource to observe and experience movement. In the field of dance we identify Ms. Irmgard Bartenieff as bringing the full-body component to Rudolf von Laban's groundbreaking methods of observing and recording movement, consecutively referred to as Laban Movement Analysis and Laban Notation. Bartenieff investigated and developed the six Fundamental Patterns of Total Body Connectivity, patterns of movement that we learn as physically developing infants and that we, in turn, use throughout our lifetime in order to execute movement (Hackney, 2002). In addition to the six Fundamental Patterns of Total Body Connectivity Bartenieff developed twelve Principles of Bartenieff Fundamentals (Hackney, 2002). Put together, the Bartenieff Fundamentals can be defined as "an approach to basic body training that deals with patterning connections in the body according to principles of efficient movement functioning within a context which encourages personal expression and full psychophysical involvement" (Hackney, 2002, p. 31).

Principles of Bartenieff Fundamentals.

While Bartenieff developed twelve Principles of Bartenieff Fundamentals, I outline a few of them while giving specific attention to Fundamental Patterns of Total Body Connectivity using various examples of pedestrian movements as well as movements from Maliyali martial art Kalaripayattu originating from the state of Kerala in South India.

Principle One: Total Body Connectivity

The first principle of Bartenieff Fundamentals recognizes Total Body Connectivity, not to be confused with *Fundamental Patterns of Total Body Connectivity* (Hackney, 2002). According to the principle of Total Body Connectivity, all body parts relate to one another and all movements, large or small, involve the entire body (Hackney, 2002). It may seem as though I am typing with only my fingers; however, as I sit in front of my computer, in order to press the least bit of force into the keys, I must simultaneously allow my weight to drop into my sitting position and press against my

chair (and in succession, the earth) in order to stabilize my spine, torso and shoulders in an upright position that makes typing a possibility.

Due to the principle of Total Body Connectivity, we can see that any change, rather large or small, physically, psychologically and expressively affects the entire body (Hackney, 2002). If I am sitting with my hands palm down on my knees, but then I turn one palm upwards, the entire shape, personal feeling and expressive meaning of my whole embodied presence changes. Although interpretations and experiences vary from person to person, I might say that with both palms down, the posture felt and looked stoic, firm, even and secure. With one palm facing up, this posture becomes more open, giving, or questioning.

Principle Three: Grounding

The principle of Grounding states that “The earth provides support, a ground for being and moving. Human beings move in relationship to the earth and to gravity” (Hackney, 2002, p. 41). The earth’s gravity grants us the ability to sense our weighted mass and to move. Only through yielding our weight into the earth and having this weight met by the support of gravity, are we able to push into the earth in order to move (Hackney, 2002). The simple act of sitting and standing makes evident the principle of grounding – to sit, I must find a delicate balance between yielding my weight into Earth’s gravity while also opposing Earth’s gravity to avoid complete collapse; to stand, I must let my weight yield into Earth as it pours through the soles of my feet and only through this yielding can I then push into the support of the Earth in order to stand. Sitting or standing requires an attention to and manipulation of where my weight is distributed (on my rear or on my feet), in other words, I must work with gravity and grounding as I negotiate where and when to yield into Earth or push against Earth’s support.

Principle Five: Intent

All movement exhibits the principle of Intent. According to Hackney, “The inner intent of each unique human being influences how his/her body moves and patterns movement” (2002, p. 43). Although we may not be conscious of our inner intent or attitude, our intentions always

determine the quality and appearance of movement. An individual's intent manifests singularly or simultaneously within the areas of Body, Effort, Shape, or Space.

Body intention. At the body-level, intent involves “clarifying where in the body movement initiates and how movement sequences through the body parts to complete the phrase” (Hackney, 2002, p. 43).

Kalaripayattu provides an example of body-intent, as a practitioner shifts backwards from *Ashwa Vadivu*, or a long-gaited forward lunge with hands on the ground, to standing. The practitioner must initiate from the top of head to roll through the spine, reach the torso upwards through space with an open and protruded chest, and then shift his or her weight backwards from the hands and front leg, through the central pelvic area and onto the back foot. This clarification of initiation from the crown and movement sequencing through the spine, torso and pelvis provides a very basic example of body intent.

Effort intention. An effort intention reveals “an inner mood, a feeling, or making a dynamic statement in movement” (Hackney, 2002, p. 43). Shifting from *Ashwa Vadivu* to standing with an open chest communicates confidence, robustness and an open and powerful heart. The decision for the Kalaripayattu practitioner to shift backwards when faced in battle reveals an intention of composure, patience, fortitude and self-control while a shift forward might suggest aggression or charge.

Shape intention. An intent in Shape includes, “forming the body to reveal a particular ‘shape’...changing the form of the body to bring about a specific type of relationship to other people or the environment...or reveal an investment in the process of shape change” (Hackney, 2002, p. 43). During the shift from *Ashwa Vadivu* to standing, the Kalaripayattu practitioner places special emphasis on the shape and shape change of the spine. While Kalaripayattu draws heavily from movements and qualities of animal and natural forms, this particular shift of weight that initiates from the extension of the crown of the head and emphasizes a rolling, energetic sequencing of

movement down the spine creates the dynamic shape of a snake while evoking the curving, fluid and elusive properties of nature.

Space intention. Lastly, a Space intention includes, “moving in order to go in a particular direction...or moving to reveal an approach to the kinesphere” (Hackney, p. 43). Approaches to kinesphere include: peripheral – relating to the outermost edges of space that the extremities can reach; central – relating to central line of gravity; and transverse – cutting or sweeping from peripheral through the central and back out to peripheral (Hackney 2002). During the shift from Ashwa Vadivu to standing, as the practitioner shifts onto his or her back leg, he or she simultaneously circles the right hand around the head, crossing it first to the left side of the head and then circling the hand around the back of the head, to the right side and then to the heart center where it joins the left hand in a crisscross shape over the chest. The initiation with an extension of the head through space reveals a peripheral approach to kinesphere while the shift from a widened, spread posture to a more contained, centrally aligned posture communicates a relation to the central kinesphere. While the circle of the right hand around the head almost reveals a transverse approach because the hand travels from the periphery to cut across the central line of gravity; however, because the hand finishes by hunkering in towards the central line of gravity rather than radiating back out to the periphery, the movement of the hand reveals a relationship to the central kinesphere.

Principle Seven: Inner-Outer

The principle of Inner-Outer attends to our psychophysical connection with environment and to the meaningfulness of movement. Hackney describes how “Inner impulses are expressed in outer form. Involvement in the outer world in turn influences inner experience” (2002, p. 44). Similar to the principle of Intent, where inner attitudes govern the qualities and appearance of movement, Inner-Outer addresses how inner experiences undoubtedly express themselves through outer expressions of movement. For example, at a dinner party where one might feel socially awkward, it is likely that he or she will take tense, shallow breaths and tighten her muscles in a protective stance. During sexual excitation we reveal our inner feelings and desires through a vast

spectrum of movements such as heavy breathing, alternate muscle tension and relaxation or through the closing our eyes. In both cases, not only do our inner feelings become evident through outward expression, but also our inner feelings are influenced by our outer environment – the social scene at the party or the presence of a sexual partner. Furthermore, outward expressions of movement can influence and change inner feelings (Hackney, 2002). Ritualistic movements such as folding hands in prayer or bowing forward in reverence often trigger changes in psychological states of mind. As one fold's his or her hands in prayer, he or she may experience a metamorphosed feeling of ease upon assuming the position to communicate with the divine; or, as one bows to the divine he or she might begin to feel a sense of ease in surrender. While inner attitudes manifest themselves in outer expression, outer expressions and surrounding environments can also influence inner attitudes.

Principle Nine: Stability-Mobility

The principle of Stability-Mobility explains the continuously interactive communication of body parts or movements that stabilize to support moving actions or that move to accomplish a particular goal. Both stable and mobile movements interact and join forces to accomplish a goal and can communicate in dual directions through any pattern of total body connectivity. For example, the core can stabilize to mobilize distal appendages, as when sitting in a chair and reaching out with the arms and hands; or the arms and hands can stabilize to mobilize the core as when initiating a handstand; the tail can stabilize to mobilize the head, as when sitting in a chair and throwing back the head in laughter, or vice versa when initiating a headstand or when engaging in a social dance move of historical popularity known as “the twist;” one half of the body can stabilize to mobilize the other half of the body as when attempting to walk homolaterally by stepping and reaching forward with both right leg and arm, or when walking in typical cross-lateral fashion by stabilizing with the right leg and mobilizing the left leg, requiring one to reach forward with the left arm and shoulder.

Principle Eleven: Phrasing

Phrasing relates to the idiosyncratic rhythms of one's particular way of moving. Hackney (2002) explains that movement happens in phrases that include a preparation, initiation, main action and conclusion. Where one emphasizes a movement within these steps of phrasing characterizes his movement quality and can influence the success of his muscular coordination. For example, a volleyball player who wants to pass the ball by 'bumping' it with her forearms, may need to emphasize an a solid, grounded preparation, a soft initiation, and a smooth main action, with a quick recuperation to prepare for future action if necessary; however, a player who wants to spike the ball over the net will need to have a clear and swift preparation and initiation, but she will need to blast through the main action in order to blow the ball with more speed beyond the reaction time of opponents. According to Hackney, the entire course of the movement depends upon the preparation and initiation phases of the movement's phrasing. In the example of the volleyball players, only with a strong and appropriate preparation and initiation can the players assert upon the ball their desired inner intentions.

Fundamental Patterns of Total Body Connectivity

The developed human organism moves according to an inherent set of movement sequence and connective patterns (Hackney, 2002). These patterns of connectivity begin with the infant's more primitive and early postural reflexes, righting reactions and equilibrium responses (Hackney, 2002). Out of these primitive reflexes, throughout the first years of life, arise Patterns of Total Body Connectivity, "habitual firings of muscular pathways" or "basic patterns of gross body function and an ability to deal with the demand of gravity" (Hackney, 2002, p. 42). Humans possess and move according to six Patterns of Total Body Connectivity: Breath, Core-Distal Connectivity, Head-Tail Connectivity, Upper-Lower Connectivity, Body-Half Connectivity, and Cross-Lateral Connectivity (Hackney, 2002). These neuromuscular connections, which I will refer to in short as Developmental Patterns, have been key influences to my own process of observing movement and learning movement, especially when learning new movement forms such as Kalaripayattu and Yoga.

Breath

The primal pattern of Breath serves as a pattern for pure consciousness. Through Breath, we understand ourselves as alive and unified with our universe. We inhale the universe into ourselves and we release ourselves back to the universe. The rhythm of respiration serves as the most vital and core function of the living organism, a rhythm that begins in the womb when a fetus is unified with its mother (Hackney, 2002). Hackney brilliantly describes the living organism's history with respiration – “Our cells respire even within the womb, before our lungs develop and call for air. We have an active relationship within us that brings life and nourishment from our mother, and takes away waste in basic pattern: Cellular Respiration—Cellular Breathing. When we are born, the cellular breath of life coming through the blood [of our mother], is fed by lung respiration, nourishment from the world mother, and the rhythm continues” (2002, p. 51).

States or changes in consciousness, thoughts and feelings can be influenced by or reflective of breath (Hackney, 2002). When we find ourselves comfortable, we breathe with ease and fullness; during discomfort, our breath becomes tense and shallow. We can take a deep breath or a relieving sigh when we need to clear our mind or let go of stress. According to yoga, the activity of breathing unifies us with *prana*, the energy of consciousness or the breath of life. Pranayama, exercises that bring awareness to breath, simultaneously energize, pressurize and cleanse the prana channels inside of the human body. According to yoga, by learning to control the breath, the yogi learns to control his or her own pranic life force (Nataraj, 2011). Both prana and mind exist within the astral or energetic body, thus working with prana influences the workings of the mind (Nataraj, 2011).

Breath serves as the ground-base, fundamental developmental pattern out of which the next five patterns arise (Hackney, 2002). Because “breath is a physiological support for all life processes and, hence, all movement” (Hackney, 2002, p. 41). Breath provides a baseline of flow and inner shaping of growing and shrinking that supports all movement. Furthermore, as the activity of lung respiration expands up and down, forward and backward, and side to side, breath introduces the

living organism to 3-dimensional space, the field within which we move and operate (Hackney, 2002).

Core-Distal Connectivity

The 3-dimensional growing and shrinking in space during breath gives way to more full-bodied radiation into and away from the core, located near the navel center (Hackney, 2002). While breath connectivity encourages continuity with the universe, Core-Distal Connectivity allows us to recognize our physical selves as an entire unit, complete with a center and with distal ends, and as an individual unit separate from its surroundings (Hackney, 2002). Hackney describes the activities of Core-Distal Connectivity as “like a star, pulsating and emitting energy from the center to move the distal ends, or bringing energy and sensory awareness from the ends of the extremities back into the center” (p. 68). Through gaining the understanding of our central core and radiating extremities, we learn the limits of our kinesphere, where we end and the rest of the world begins (Hackney, 2002). Furthermore, our understanding of integration with our universe becomes more individuated – our basis of breath unification with our environment receives the addition of sensory engagement, interaction and communication of our bodies with our surroundings. We use the physical fundamental of Core-Distal Connectivity to psychologically know “where we are—what is ‘me’ and what is ‘not me’” (Hackney, 2002, p. 68).

While learning Kalaripayattu, the pattern of Core-Distal Connectivity served as a major physical organizer and mode of physical and psychological expression. The movements of Kalaripayattu involve a constant interchange of outwardly radiating limb and extremity movements that sweep the practitioner’s furthest edges of his or her kinesphere, with inwardly pulling, almost sucking movements that return the limbs to the core. When practicing the *kettukari*, or long wooden staff weapon, the practitioner must deeply bend his or her knees to lower the core towards the floor, reach the head and torso forward to extend away from the core and thus extend the *kettukari* as a natural extension of the limbs. As the practitioner maintains this squatted position with the torso and head extremity extended as far forward as possible, he or she must also move

through space in defense and attack. This moving position that both hunkers down and extends into space ensures the necessity of a strong core that can hold together and control all limbs, especially when posed with the added challenges of manipulating a long staff that proposes a lengthening of the upper limbs along with a release in the hip joints that allows the legs to travel. Indeed, my gurukkal, or teacher, often firmly pressed his core and encouraged its significance for power, support and initiation. During movement phrases of god and goddess salutation, the Kalaripayattu practitioner extends his or her right hand from the core, straight into the air over the head and then circles it forward and touch the ground, then the forehead, then the heart. This salutation communicates the desire to pull energy from deep inside our sources of strength and allow it to radiate into our surrounding environment. Furthermore, we use our distal ends to express respect for powerful external aspects of our environment while invoking those aspects into our minds and hearts through the medium of sensual touch. During the practice of movement in any system of training or ritualized movement, whether consciously or unconsciously we use the Core-Distal Pattern as both a tool for physical organization and for psychological expressions of the individual who remains connected and integrated with the universe.

Head-Tail Connectivity

During the development of Head-Tail Connectivity, the human being recognizes and utilizes the relationship between the cranium at the top of the spine and tailbone at the bottom of the spine (Hackney, 2002). With the spine serving as central column of connection and support, all movements of the spine affect the entire body and any body movements affect the spine, thus “the concept that head and tail are in a constant and always changing interactive relationship is often the single most important realization that a student of movement can have” (Hackney, 2002, p. 87). Indeed, understanding the relationship of head and tail can provide a mover with significant access to central support and expressivity.

The development of Head-Tail Connectivity signifies individuation, the realization of uniqueness and individuality. Psychologically and socially, Head-Tail Connectivity reveals at the

spinal level our habitual stance toward the world, or Body Attitude (Hackney, 2002). Hackney goes on to give the examples of how our society might perceive someone with drooping shoulders as “unmotivated,” or how someone with pushed back tail as “flirtatious” (2002, p. 85). Although Kalaripayattu represents a full-bodied practice, my gurukkal often stated that Kalaripayattu “works with the spine.” Furthermore, inside of Kalaripayattu class, expressions of the spine signify very sacred acts of communication with the divine while an awareness of Head-Tail Connectivity proves functionally useful. The ritual salutation of gods and goddesses includes the repetitive practice of facing a Shiva/Shakti altar and while maintaining the position of arms folded in prayer position held in front of the face, the practitioner arches the spine as far back as possible and circles his or her head towards the right while folding at the knees to end in an upright squatted position with the back arched and chest and face open towards the altar. The spine executes its full range of capabilities including arching, rounding, lateral flexing, and twisting. The initial arching of the back suggests strength and grace, while the circle to the right that causes the back to twist and round suggests humility and attendance to personal, internal powers. The final hunkered position with an arched back denotes a sturdiness and directness necessary for proving heroic in the face of the divine.

Throughout this sequence, an awareness of the relationship between head and tail proves necessary for the practitioner to successfully execute the intended movement. While the head mobilizes through space, the tail as located nearest to core provides less-mobile stability. Furthermore, as the head circles towards the floor, the tail must help leverage the weight of the head by dropping towards the floor at the same time. I found that to circle the head to the floor while allowing the tail to fly to the ceiling inevitably results in a face-crash; however, allowing the tail to drop into the gravity along with the head helped to balance the torso and stabilize the center well enough to support freedom of the head to move through space.

Upper-Lower Connectivity

Finding Upper-Lower Connectivity means learning how to differentiate and utilize the specific capabilities of the upper and lower body (Hackney, 2002). Generally, the human being uses the lower body to create upper body support and full-body locomotion while commissioning the upper body for the purposes of interacting with the world (Hackney, 2002). In some cases these roles may be reversed, such as in quadrupedal movement (when the hands or arms transfer body weight as in cartwheels), or when during the use of upper body mechanisms for locomotion such as crutches or wheelchairs (Hackney, 2002). While Upper-Lower Connectivity requires differentiation, Hackney states, “The creative challenge is to give each the needed movement experiences so that each develops specific skills fully and in collaboration with each other—without having differentiation come to mean total isolation” (2002, p. 112). In order to utilize Upper-Lower Connectivity, the human being must draw upon previously developed skills of Breath, Core-Distal Connectivity and Head-Tail Connectivity to find an ebbing/flowing and growing/shrinking relationship through the center of the body between upper and lower.

The flowing relationship between upper and lower exists as a kinetic chain of *yield and push to reach and pull*. Generally, the lower body yields and pushes into gravity to transfer energy into locomotion. The upper body receives this initial transfer of energy to reach and pull into space. When walking, we yield the weight of body into one foot and then push away with this foot to propel the body diagonally forward through space. If we hunker down with the upper body and resist the need to reach and pull, our walking would at least seem constipated or we may not accomplish the task of walking forward at all. The kinetic pattern of *yield and push to reach and pull* can happen in both directions – from lower to upper as in standing or from upper to lower as when pushing ourselves out of bed.

Psychologically, Upper-Lower Connectivity signifies our functional and expressive ability to “take a stand” or push our presence into the world and accomplish tasks (Hackney, 2002 my

quotations). We learn to push ourselves towards goals or items that we want and we learn to push ourselves away from ideas, people or items that we do not want.

Body-Half Connectivity

Once Upper-Lower patterns of connectivity have established kinetic chains of integrated yield and push to reach and pull, these patterns begin to take sides. According to Hackney, Body-Half Connectivity allows the human being to stabilize one side of the body in order to mobilize the other (2002). We learn how to hold things with one hand while manipulating with the other. Psychologically, Body-Half Connectivity allows us to recognize dualities – right and left, hot and cold, light and dark, rational and creative, etc. (Hackney, 2002). During the development of Body-Half Connectivity, the toddler begins to establish a dominant side to become a “righty or a “lefty” (Hackney, 2002, p. 165).

When practicing Kalaripayattu, Body-Half Connectivity became necessary when turning to change facing. As the practitioner steps forward with the right leg while reaching the right fist and elbow forward simultaneously, he or she then stabilizes the entire right side of the body to use it as a pivot point in order to swivel the left side around to face the opposite direction.

Cross-Lateral Connectivity

Throughout developmental progression we follow a sequence of recognizing a basic and unified existence and rhythm through Breath, finding our extremities in relation to a center in Core-Distal Connectivity, recognizing our own individuality through spinal awareness in Head-Tail Connectivity, asserting ourselves upwards and retreating downwards in Upper-Lower Connectivity, and gaining the ability to choose and decide or understand two sides in Body-Half Connectivity. The development and use of Cross-Lateral Connectivity represents the synthesis and zenith of complex and integrated movement patterns. The pattern of Cross-lateral Connectivity utilizes diagonal pathways through the center and finds connections between body quadrants (Hackney, 2002). Through Cross-Lateral Connectivity, we can play around with moving forward and back, up and down, and right and left all at once. The baseball pitch represents a series of complex

movements that utilize deep Cross-Lateral Connectivity. Not only can we see a diagonal connection during the pitcher's initial wind-up as he hunkers down on the back leg while pulling the front leg across the body towards the opposite, throwing shoulder – when the pitcher hurls the front leg down and forward he simultaneously reaches the opposite throwing arm up and back. When the forward leg presses into the ground (yield and push), the pitcher's acquired energy ripples cross-laterally from the foot and diagonally across the core and torso to blast through the throwing shoulder, arm and hand.

Appendix D: Sexuality in the Fieldsite

To begin a discussion on sexuality and the fieldsite, I believe it necessary to provide two statements to describe the nature of this topic as I experienced it in the fieldsite. First, despite my fear of receiving a biased gender label that limited my assigned ability to perform hands-on participation, this suspicion cannot be supported by any direct comments or attitudes of employees at Joko's Body Shop. On the other hand, direct consideration of gender beliefs, agreements and disagreements often became topics of discussions held with Rick and other participants in fieldsite locations other than Joko's Body Shop, such as during hang-out time or during interviews. Secondly, the prevalence of gender roles in the field represent boundaries that should receive consideration as normal, rather than excessive, components of a generally thought of western sociocultural environment. Despite what I might describe as an environment where sexuality and gender exist and play out within the bounds of normativity, sexuality and gender cannot be an ignored component influencing my perspective, decisions and choices of participation in the field.

Gender at Joko's Body Shop

All employees at Joko's Body Shop were men. Although I had heard accounts of women who had vehicles in the shop for remodeling or revitalization (one individual woman and one member of a heterosexual couple who shared a vehicle), I only encountered men who represented employees, customers or visitors from local businesses during all six of my field visits. Although direct comments about gender did not present themselves at Joko's Body Shop, the presence of my gender as a woman can be easily and safely distinguished as different from the normal environment. Despite the variation of environmental gender norms my presence and inquiry created, it seemed that on an overall basis, gender and sexuality were ignored aspects by Joko's Body Shop employees with whom I never encountered directly recognizable hostility, discrimination or exploitation of my role as a woman. Only two instances of sexual hostility or exploitation arose at Joko's Body Shop, the first taking place with Mr. Nudeart's arrival on the formidable fourth visit. The second instance took place on a date long after the ending of my sixth

formal field visit, when my younger cousin, aged 22, accompanied me on a short recreational visit to see Rick and Elle, who owned a car in the midst of repair. The particular incident took place when Mr. Cruz, the owner of Juko's Body Shop, jokingly and consistently attempted to convince my cousin to let him see a large abrasion on her upper thigh created by a motorcycle accident. The incident ended with mutual laughing upon my own protests and threat to set him on fire with a long-nosed torch lighter characteristic of my personal style.

Undercover Breaching

One of the primary reasons for choosing undercover breaching stemmed from my hope to avoid the discomfort that can arise when topics concerning one's body or ways of using one's body are pointed out, publicized or otherwise brought into open consideration. Although I cannot speak for how participants experience or think about their own embodied practices or that of others, my experience has led me to believe that as embodied, holistic beings, I cannot avoid or exclude the sexuality embedded in someone's embodied identity, regardless of the level of intensity this sexuality presents itself in various movement activities and choices. To call someone's ways of embodied being into open or closed contemplation always runs the possibility or even the risk of simultaneously calling into investigation social or personal concepts of sexuality. In the process of observing participants and writing fieldnotes, I felt the strange presence of implied sexuality, especially when the topic centered on touching, fingers or hands, regardless of how dry or devoid of interpretation I sought to record events in the field. Because of the similar age and shared generation between Rick, other participatory members of the fieldsite at Juko's Body Shop and myself, the presence of heterosexual compatibility between myself and the employees and customers cannot be denied as a silent force influencing choices of behavior and interaction; however, this sociocultural, psychological awareness of gender and sexuality remained practically ignored at Juko's Body Shop and completely ignored by Rick and other employees (minus the incident with Mr. Cruz and my cousin). For this reason, I felt it best to at least attempt to maintain

some normative stability by using undercover breaching (although my success remains questionable) to obtain direct information about Rick's embodied knowledge.

To end with a rather weak and unsupported call of attention to the possibility of a conceptual link between hierarchy, power play and sexuality, I might point out that the field members who felt some measure of appropriateness in transgressing what I consider gender and sexuality barriers of respect, held positions of economic and political power – the paying customer who had chosen a retired police car for complete remodeling by Juko's employees; and Mr. Cruz, the owner and manager of Juko's Body Shop.

Appendix E: Initial Research Interests and Questions

- ✦ **Does the possibility exist for ethnographic data that is derived from proprioceptive sensations and/or kinesthetic awareness:**
 - » Particularly those of the researcher who actively engages in the practice of participants with an attention to proprioceptive and kinesthetic sensations/perceptions as indicators of how individuals and groups experience, believe, come to know, and make meaning
 - » Also those of research participants as they communicate through verbal accounts, instructions, and expressions.

- ✦ **What would a methodology for this kind of research include?**
 - » Actively doing research participants activity, alongside/with participants
 - Doing:
 - ☛ Maintain deep awareness of kinesthetic perceptions – gaining insight into what participant feels in and of the body while practicing an activity significant to his/her personal, social, mundane, ceremonial/ritualistic, cultural and/or spiritual life.
 - ☛ Consciously observe the specific ways participant uses her/his body to accomplish task (gross and fine motor movement choices) and attempt to engage in activity in similar way.
 - Listening:
 - ☛ Closely tune into the instructions given by participant, listening for statements that reveal the beliefs, experiences and knowledge that the participant associates with kinesthetic perceptions/embodied experience.
 - ☛ Heighten awareness of other verbal expressions (words or sounds) that reveal how participant experiences the body. Take note of the kind of sound, when it was made/what participant was doing.
 - Observing:
 - ☛ Visit research participants in various contexts – home, religious, social, work – and observe specific ways that all members involved in the construction of this ‘place’
 - ☉ move their bodies
 - ☉ communicate through movement
 - ☉ express how they feel in, of and about their bodies.
 - Dialoging:
 - ☛ With research participants – ask for opportunities for more formal, verbally-based communication or interviews. Take note of stories, accounts or terminology that can give context for researcher to understand the information provided in doing, listening, and observing.

- ✦ **How does the ethnographer approach the inherent and unavoidable, highly subjective concepts of identity, knowledge and belief attached to embodied experience?**

Fieldnotes:
 During these methods what kind of approach to note-taking will prove most useful and beneficial – Write during or after participation? How to frame fieldnotes?

- » Is embodied/kinesthetic experience subjective beyond its reliability for producing ethnographic data?
 - » What methods or approaches might the ethnographer use to account for and embrace the subjective nature of kinesthetic experience and movement meaning while also maintaining ethical standards and project viability?
 - Fieldnote accountability
 - Self-study and contemplation – building awareness of own experientially engrained embodied knowledge so to avoid projecting own kinesthetic perceptions and movement meaning onto participants.
 - Honesty with research participants unless situation calls for otherwise.
 - » What issues must the ethnographer problematize in terms of culture?
 - What must be considered in an unfamiliar culture?
 - ☛ Differences in movement meaning.
 - ☛ Unfamiliar gender roles.
 - ☛ Differences in kinesthetic interpretation.
 - ☛ Participant/Researcher language choice differences in verbal descriptions.
 - ☛ Participant assumption of shared meaning; familiarity of a topic, practice or experience may encourage research participants to neglect specific details that may be valuable to ethnographer.
 - What must be considered in researcher's familiar culture?
 - ☛ Assumptions of shared meaning.
 - ☛ Researcher de-sensitized to the experience of movements she/he may have practiced many times in own life.
- ✦ **To what degree of variety or specificity should researchers seek in pursuing this kind of research? What benefits and drawbacks might arise in research processes**
- » Variety
 - Cultural backgrounds
 - ☛ Potential Benefits:
 - Ⓞ Urge researcher to encounter, investigate and respond to cultural differences relating to concepts of movement meaning, embodied knowledge, physicality, anatomy, psycho-somatic experience, kinesthetic sensation, perceptions and expressions of bodily pain, euphoria, desire, etc.
 - Ⓞ Exposure to a variety of cultural perspectives may inspire more complex theoretical development applicable to a variety of cultural contexts.
 - Ⓞ Methodology right away investigates implications inherent in studying unfamiliar cultural versus familiar culture.
 - ☛ Potential Drawbacks:
 - Ⓞ Not enough time to conduct ample research into unfamiliar cultures – run risk of inappropriate or unethical investigation into cultural beliefs and/or traditions. May also lead to misunderstandings or inaccurate assumptions. Run risk of generalizing across the various cultures included in study.
 - Ⓞ Information may be less accessible due to language barriers and social constructs of morality.
 - Activities/Practices
 - ☛ Potential Benefits
 - Ⓞ Wider range of investigation. Diversity of kinesthetic experiences.

- ┆ Potential Drawbacks:
 - ⊕ Disorganization; Difficulty making comparisons or drawing theoretical concepts
- » Specificity
 - Cultural backgrounds
 - ┆ Potential Benefits:
 - ⊕ More focused inquiry that might allow comparative accounts and discernable similarities/differences.
 - ⊕ Deeper, more complex inquiry into the role kinesthetic perception in the construct of cultural identity in terms of the individual and group.
 - ┆ Potential Drawbacks
 - Activities/Practices
 - ┆ Potential Benefits:
 - ┆ Potential Drawbacks: