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Ann L. Swartz  
*Pennsylvania State University*

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# Embodied Learning and Trauma in the Classroom and in Practice

Ann L. Swartz , Penn State University – Harrisburg, USA

***Abstract:*** *This study sought to understand how RN-BS clinical students learn through their bodies and how these patterns relate to trauma. Use of an experiential, embodied pedagogy led to emergence of embodied connection with self and new patterns of self-care, professional knowledge and action.*

Human beings learn in multiple ways and in multiple forms throughout their lives. Their entire being forms a learning network that makes patterns of connections linking brains and bodies, neurons and networks, synapses and souls. An examination of the linking of these patterns of connections as human beings learn is often conceptualized in the complexity science and neuroscience literature in the language of the system self-organizing (Mitchell, 2009). Adult educators would conceptualize this process more simply as either ‘adult learning,’ or learning through the body, or ‘whole person learning,’ depending on their particular area of interest. Indeed, there’s been a growing discussion in the past few years that considers the role of the body in adult learning (Merriam, 2008). But thus far in adult education, there’s been little consideration of the role of the body in learning specifically from a complexity science/neuroscience perspective. This particular study focused on the role of the body in learning, among those who deal quite intimately with the bodies of others as both adult educators and as adult learners: practicing nurses. It examined, in particular, what complexity scientists refer to as self-organization by creating new patterns of connection, or how the human organism spontaneously reorganizes in unique ways in response to experience over the entire lifetime.

This qualitative study examined the unfolding process of learning through the body, or embodiment, understood as an emergent property of neural systems, personal, and interpersonal patterns of connection. Trauma is the self perception of being overwhelmed by events beyond the capacity to cope or endure (van der Kolk, McFarlane & Weiseth, 1996), a perception that can disrupt and shape the patterns of connection constituting learning. Embodied learning occurs in unique and unpredictable ways for each individual, depending upon their initial conditions. Initial conditions, such as heightened sensitivity to sounds or a history of training the body to an external standard, exist at all systems levels, from the biomolecular to the universal. This study directed its gaze at the level of the whole person. At times, self-organizing learners replicate and strengthen their initial condition. Other times they change in a variety of ways, both structural and behavioral. Learners bring their embodied history, including traumatic experiencing, into class and into nursing practice. For nurses, this process has meaning because nursing work is specifically embodied work. But higher education settings rarely address nurses’ bodies.

The research setting for this study was two RN-BS clinical courses which used an integrative pedagogy incorporating experiential anatomy, yoga trance dance, mindfulness derived body awareness exercises, reflective journaling, and clinical storytelling. Course content incorporated an ethological (evolutionary) neurobiological model of human development and trauma (Siegel, 2001; Silove, 1998), and also taught complexity science, the science of change, to enhance understanding of this evolutionary model of the human body/mind.

## Theoretical Framework

Complexity science is an interdisciplinary science that describes living organisms and social systems as integrated wholes whose properties are determined by the relationships among their parts (Mitchell, 2009). These dynamic, self-organizing systems (such as people, brains, immune systems, the world-wide web) evolve through interaction with their environments toward greater complexity, thriving on connectedness and self-organization. More simply, this means they form new patterns, learn and evolve, spontaneously, without being directed, using their natural capacity to process and respond to many forms of information. In dynamic living systems, small changes can result in large effects.

Adult education and nursing education always happen in a context. A basic premise of this study is that learners are always in the process of what neurodevelopmentalist Daniel Siegel (2001) refers to as integrating through self-organizing, as a result of learning through life experience, including those experiences related to fear and trauma. Siegel (2001) identifies this process of self-organizing integration as the creation of mind; a developmental process that occurs as the body interacts with its social environment, changing the brain, creating networks of firing patterns throughout the nervous system, and thus creating mind. Integration, or this building of new and more complex patterns of neuron firing, is disrupted by traumatic exposures and healed through relationships (Siegel, 2001). Exposure to trauma often leaves one more reliant on senses other than auditory, and learning can seem caught up in the body's conversations with its own adrenalin (Perry, 2006; van der Kolk, 2006). Both moving and watching can become more integral to learning. Traumatologist van der Kolk (2006) notes our wordless need to move when confronted with trauma and threat and claims that the changed neurological body is taking survival action. His clinical research has found that yoga practices, which use both brain and body together, are effective means for achieving nervous system integration following trauma exposure.

In dynamic systems, or complex adaptive systems, the process of self-organization is always sensitive to initial conditions. Kelso (1995), a neuroscientist who studies the brain as a dynamic system, teaches us that when applying the concept of self-organization to learning, we must always begin with an understanding of the individual's intrinsic dynamics, the tendencies and constraints already present, the history of experiences that create their unique 'signature'. When new learning begins, it starts with the ordered pattern that already exists for each individual and builds on that pattern to greater complexity and a new pattern of order in a non-linear fashion (Kelso, 1995). Sometimes this is a result of interaction with trauma.

Previous adult education research has examined embodiment in the RN-BS classroom (Freiler, 2008), with social workers (Sodhi, 2008), and embodied learning through yoga practice (Horst, 2008) but not embodied learning's specific relationship to trauma. Dirks (2008) has argued that strong emotional experience is embodied and should be recognized as central to learning and meaning-making. He does not link strong emotional experience to trauma. Complexity science, used to study developmental process and life transition (Karpiak, 2006), has not been applied to studies of either embodied or whole person learning. Neuroscience has made its way into adult education (Hill, 2001; Johnson & Taylor, 2006; Taylor, E. 2001) yet is not appearing in research on embodiment. Stress and trauma are recognized as bodily expression that can interfere with learning (Kerka, 2002; Perry, 2006) but trauma is rarely researched. This study makes a contribution to adult education by offering a new way to understand embodied

and whole person learning by drawing from embodied cognitive science, complexity, and neuroscience. Also, it advances a naturalized understanding of trauma in the classroom.

### **Research Design and Methodology**

Since this study proposed to challenge traditional biomedical conceptions of body, mind, and trauma, and to challenge traditional nursing pedagogy in a classroom by teaching with alternative methods, an action research presented as a most logical methodology. But because of the trauma aspect and the classroom setting, a general qualitative design was chosen to avoid ethical challenges and the action perspective was shifted to pedagogy. Clinical Action Research as practiced by Miller and Crabtree (2005) is an integrative model following the guiding premise that the questions, which emerge from the embodied, embedded, and mindfully lived clinical experience must frame the research conversation and determine the research design. They propose double stranded designs combining both qualitative and quantitative data collection methods. Action is practiced through participation, as participants generate questions and methods for answering them, study themselves, challenge their own situated knowledge, and empower their own transformations. This clinical action perspective shaped the integrative pedagogy used to create the research setting and was the guiding method for data analysis.

Purposeful sampling identified 14 eligible (had completed both courses using embodied pedagogy) and available students and all agreed to participate. The primary source of data was in-depth interviews conducted approximately 6 months after course completion. Supplementary data came from reflective learning journals and psychosocial self-assessments completed online and discussed in the journals. Concepts from complexity science informed the data analysis plan. After identifying intrinsic dynamics / starting conditions, signs of self-organization were sought. Self-organization is evidenced by evolving patterns of connection, increasing complexity shown as increased integration, and emergence of new behavior connected with a sense of being part of a larger whole. Patterns of connection were identified across all data sources around three topics: initial conditions, learning, and fear / trauma. Three primary research questions guided the study: How do students make patterned connections when experiencing integrative pedagogy, how are their unique patterns of trauma involved in this process, and how are connections made to personal lives and professional practice? This report focuses primarily on the findings related to trauma, with some connections made to the other questions through the trauma lens.

### **Findings and Discussion**

Registered Nurses in the U.S. are an overwhelmingly female, white, and middle-aged group. These participants, practicing RN's studying for a BS degree, were a remarkably diverse group representing the demographic shifts occurring in the profession. Four of the fourteen were male. The group included one African, one East Indian, and one Latina born in South America and brought here, undocumented, as a child. Two others were of mixed white and Native American ethnicity. One was married to a refugee. Their ages ranged from 23 to 63. Years of nursing experience ranged from less than one to 23. Median experience was 2.5 years.

### *Intrinsic Dynamics / Initial Conditions*

*There were notable histories of traumatic experiencing by participants or someone close to them.* Of 20 potentially traumatizing experiences identified from trauma research, 19 were present in this group. Most participants reported life threatening illness, handling dead bodies, death of a close friend or family member, and several witnessed serious accident or injury (outside of work). But it was interpersonal violence, either experienced or witnessed, that was showing lasting effects on the sense of feeling stressed. Current learning processes were only impacted by perceived current stress about old or current severe stress experiences. An identifiable current high stress group showed several signs of traumatic stress, but not to the extent of a traumatic stress disorder.

*Early body memory stories revealed unique personal styles of being in the world.* Body memory styles fell broadly into a few categories: mastering the physical body, taking in and exploring the environment, body image and health concerns, concerns about safety and vulnerability. Interestingly, these styles are consistent with theory about cognition in action. These themes presenting in early memories continued to reappear in journal reflections on learning experience, in clinical stories, and in interview responses during reflection on personal embodied learning. Robert, who grew up in the midst of civil war, reflected, “Am I claiming my height? I really don’t think that I am claiming my height. I remember my grandmother saying ‘Stand up straight!’ That actually made me feel better, but somehow I always slipped back to my usual. I don’t know if it was my way of dealing with some of the issues I went through as a child or what.”

*Participants’ life histories of trauma also began showing up in body style in these early body memory stories, and continued to reappear in other data.* Individual differentiation and integration of emotion, relationship and coherent narrative still occurred, despite trauma, but trauma memory influenced style. For example, for a woman who lived with constant anxiety born of a life spent mostly on the run, embodied learning was characterized by concerns about safety and vulnerability, and her approach to experiential anatomy was to re-write every exercise to her own needs, always seeking out the element that would help her relax. Surprisingly, she enjoyed this activity.

### *The Natural Environment of Nursing Practice and Survival Learning*

*Learning via fear conditioning (first time learning in terror, an embodied experience, never to be forgotten) is common in the transition from nursing school to early nursing practice.* Nurses’ stories consistently revealed several events that invoked fear, an embodied experience, as they learned to identify and respond to the threats inherent in the clinical arena – a first medication error, full realization of responsibility for another’s life, the first cardiac arrest and resuscitation, and the first unanticipated patient death. After initial experiences of freezing, they learned that they were not alone and that they could trust their body’s messages and also its automatic responses as training kicks in via pre-conscious cognition. This is consistent with fear conditioning that arises naturally in the course of living.

*Trauma learning, embodied learning in instances of little to no personal control and often accompanied by humiliation, begins during the first job orientation with horizontal violence and continues in ongoing confrontations with paradox, having to negotiate the co-presence of chaos and order in clinical settings.* It was the experiences of trauma learning, not of fear conditioning, that were linked to the presence of symptoms of compassion fatigue, a form of traumatic stress disorder. The troubling types of paradox included horror of unexpected

events, the incongruity of human beings vs. technological treatment, and tensions around resuscitate vs. do not resuscitate decisions. As Angela, a dedicated nurse of four years explained, “I’ve felt helpless with a patient. I did everything I was supposed to do. I called the doctor. I was advocating. I was assessing her like there was no tomorrow ... but she still died. That creates a knot in your stomach and a terrible feeling.”

#### *Embodied Learning Processes in Class*

*The initial experience of yoga trance dance helped eliminate the universal fear of being watched.* With serious histories of interpersonal violence there was greater need to feel in control in this setting. “I kind of put it to an automatic mode, regardless of how I felt,” reported Cadence who had the most significant history of interpersonal violence.

*There was much differentiation apparent in the adaptation to a new kind of learning.* Students began to develop their own form of ‘study’, then self-identified around this. Athletes had some trouble moving beyond their conception of a prescribed body.

*Re-patterning occurred around early body memories.* There was a notable change in the emotional valence of the body memory stories between the original written version and the retelling months later during interviews. The stories also became more highly elaborated. Fear and trauma became integrated into stories, forming narrative coherence that in turn contributed to emergence of a personal style of embodied experiencing. John, an ER nurse surprised to enjoy embodied learning noted “It brought back memories that I thought weren’t really memories.”

#### *Personal and Professional Outcomes*

*New connections with self, experienced as interior awareness, emerged from unique patterning of experiences of embodiment.* Visceral, emotional, or insight connections were predominant. The high stress group connected through emotion. Learning style moved toward concrete experiencing and diversified along the action-reflection axis.

*New Self-care practices emerged.* These were highly diverse and included being less likely to ‘take a pill’, greater self-acceptance leading to weight loss, improved management of negative emotions, more attention to their body’s messages, self-calming through breathing, more awareness of their own body language, and sharing embodiment activities with loved ones.

*The pattern of the whole was realization of the power of sharing nursing clinical stories. More comfortable connection with the work setting emerged through highly differentiated pathways.* All participants reported realizing they aren’t alone in their experiences, although they take very individual paths in making sense of trauma. Some re-evaluated their clinical confidence, either becoming more self-assured or correcting a dangerous arrogance. Several experienced a feeling of more empathy and less annoyance. A few reported more holistic thinking about the body/mind/spirit and in non-linear problem solving. For most there was an increased sense of balance and relaxation. Especially for those who had experienced the greatest personal trauma, there was a very palpable sense of connecting through embodiment with their patients’ embodied experience: Marie, who lived with memories of childhood injuries, said “I think embodiment is carried into my practice mostly emotionally. When I care for a child, I make sure they’re comforted, and that they know its not their fault that this happened.”

## **Conclusion**

This study demonstrates that a neuroscience and complexity perspective has much to offer to our understanding of embodied learning and whole person learning. Trauma is present in the lives and embodied knowing of many adult students, and therefore in learning settings,

making it a legitimate focus of research and an important consideration when developing pedagogy. Practices borrowed from somatic therapy and yoga can be used to enhance adult teaching and perhaps encourage different trajectories of learning. Connecting embodied learning with practice via the sharing of clinical / practice stories enhances the translation of learning into action in personal life and professional practice.

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