

of Salzburg Academy of Dance), or of the various videos that were projected. Instead one will find a number of photographs of some particular work that was performed at various different times. The catalog seems in fact to complete the exhibition, or to be a complementary addition to it. The appendices also contain “the first comprehensive list of exhibitions, performances and biography of Simone Forti” (11). Without claiming to be a catalogue raisonné, *Simone Forti: Thinking with the Body* is highly enlightening. Thus one can see how important a resource it is for scholars—a new point of departure for reconsidering Forti’s oeuvre as a whole.

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Dancing to Learn: The Brain’s Cognition, Emotion, and Movement

by Judith Lynne Hanna. 2015. Lanham, MD: Rowman & Littlefield. 205 pp., appendices, references, index. \$27.55 paperback.
doi:10.1017/S0149767715000571

Philosopher Jaana Parviainen argues that, “The dancer wrestles with sensations and images of movement, its meaning, quality, shapes, and textures, struggling to capture some half-grasped or intuitive complexity of visual-kinetic form” (2002, 13). Dance knowledge, in philosophical terms, foregrounds procedural, versus discursive, knowledge; that is, of what it is like to know *how* to dance, versus knowing something *about* dance. Dance scholar Anna Pakes distinguishes this difference by using Gilbert Ryle’s (1963) oft-cited example of riding a bicycle: “Knowing how to ride a bicycle is clearly different from a theoretical knowledge of how

the bicycle works [...] Factual and theoretical knowledge of the latter kind is not going to help the aspiring cyclist learn to ride—that can only be achieved through practice” (Pakes 2009, 11). Knowing how to dance “essentially concerns the body’s awareness” (Parviainen 2002, 13). Dance knowledge of this type “means becoming bodily sensitive in the respect of the kinaesthetic sense and one’s own motility” and “the ability to find proper movements through bodily negotiation” (Parviainen 2002, 20). This is not to make the claim that dance is *only* a bodily way of knowing, and negate discursive knowledge only accessible through language, or to claim dance as some authentic “physical, transient, non-classifiable” type of knowledge (Klein 2007, 29). Rather, it is to argue that dance knowledge has a *relationship* with language, but also has its own discursive forms, such as intersubjective communication via the body (Klein 2007; Parviainen 2002).

It is important to continue to proclaim the significance of bodily dance knowledge. As dance scholar Gabriele Klein points out, knowledge is fundamental to the establishment of social, political, cultural, and economic relations and, as new forms of knowledge gain social significance, “new forms and distributions of power develop and become established within state and society” (2007, 26). The argument for dance as a valuable form of knowing needs to be continually declared, to politicians, academic officials, and the public, in the face of economically based ideologies that put pressure on dance for not producing a concrete, measurable commodity.¹ As Parviainen notes, a great deal of work still remains to be done in the nature of dance knowledge and our means of attaining and communicating it (2002, 23).

Judith Lynne Hanna’s *Dancing to Learn: The Brain’s Cognition, Emotion, and Movement* aspires to contribute to this domain. The book aims to cover the cognitive aspects of learning to dance and to “[reshape] our understanding of dance based on profound shifts in knowledge about the brain” (x). Dance is defined as a form of “exercise plus,” because “dance adds cognition—thinking processes—and emotion to the physical” (xi). The goal, Hanna states, is “to illuminate and demystify dancers’ inner processes of learning, creating, performing—building their complex cognitive, emotional, and movement skills needed to hone and execute the dancer’s craft” (xxii).

Dancing to Learn brings together a host of relatively recent research in the area of neuroscience and dance, particularly in the first two chapters of the book. The final half of the volume covers “the brain’s cognition, emotion, and movement” principally by presenting a taxonomy of dance education programs, several examples of dance learning as “personal development,” including a discussion of technological tools, and a selection of case studies that are categorized as issues of dance learning related to personal and/or cultural identity (116). Hanna covers an array of perspectives regarding how dancing to learn or learning through dance relates to neuroscience, general education programs, the motivation and change of disenfranchised communities, and one’s sense of self related to community and country. Her goal is difficult to achieve when covering such an extensive range of perspectives on dance. There is so much material covered in this text—taking a dance class, watching a community dance event, studying dancers’ brains—that the task of arguing a distinct point about the importance of dancing to learn becomes lost. The book covers many genres of dance, as well (e.g., ballroom, contemporary, hip-hop, ballet, folk). Trying to discuss the types of learning in all these various genres diminishes the potential to present the full complexity of dancing to learn or learning through dance, which, as Hanna herself states, can vary by context and style (81–86, 158–165).

A common problem when discussing dance and the brain and/or cognition is how to avoid reinforcing a conceptual split between the brain and the body. Dance studies scholar Cynthia Jean Cohen Bull acknowledges the delicate challenge of writing about dance and the brain/body: on the one hand, researchers who translate movement into cognitive systems can sometimes “subsume the reality of the body, as if people’s experiences of themselves moving in the world were not an essential part of their consciousness” and, on the other hand, “researchers who wish to redress the imbalance of mind over body may react by positing the body and movement as the primary reality” (Bull 2001, 404). Or as Klein puts it, “Thinking movement, i.e., finding a language for dynamic processes, has always been a challenge for those creating knowledge [...] because discursive knowledge always has to avail itself of

the medium of the spoken word” (Klein 2007, 32–33).

Hanna tends to prioritize the brain, though fortunately not to the point of totally subsuming the reality of the body. For example, Chapter 1 is titled, “The Brain Choreographs Dance-Maker, Dancer, and Spectator,” and includes the declaration that “the brain is the ‘master choreographer’” (1). Placing the brain as *master* of the body implicitly reinforces a top-down neuroscientific model of the brain as central command and the body as subservient to it. Theories, such as dynamic systems theory and the enactive approach to embodied cognition, in neuroscience and philosophy, have been trying to work against top-down input-output models, mainly because these models do not allow for full theorization of the complexity of the interaction of the whole human organism in cognition.² Many professional dancers might also disagree that the brain is the “master choreographer” by making the contrasting claim that sometimes the body creates its own knowledge (e.g., a dancer can execute very complicated choreography without consciously thinking about it because her body has learned it through practice).

Hanna cites much of the research from the last decade related to dance and neuroscience. However, the reader is principally left to link this research to the practical project of dancing to learn. Similarly, she provides a good deal of brain anatomy and physiology (7–15): The architecture of each section of the brain is outlined, and Hanna includes movement that each area of the brain is ascribed to, such as the left parietal lobe, which is involved when skilled movement is executed (10).³ However, while generally accurate, this factual information is not explicitly linked to the practicalities of dancing to learn or learning through dance, which is stated as a key aim of the book, which is “. . . for the first time bringing together intellectual perspectives [from an array of disciplines] that have been poles apart” (xiv). The most difficult questions still remain: In what ways is this information applicable to the dance educator or learner? How do we relate this information about brain structure and function to those places where dance learning happens (which is the focus of the second part of the book)?

A lack of dance studies scholarship citations, in comparison to the amount of

neuroscientific and social science research cited, somewhat undermines the aim of the book as an advocate for dance learning in its many forms. A number of dance studies references came to mind, particularly in the first section of Chapter 3, “Brain-Changing Dance Venues: From Street/Studio/Classroom to Stage and Back,” which tries to summarize several aspects of dance history in a few pages. For example, modern dance is summed up in a paragraph as a rebellion “against the hierarchical ‘tyranny’ of ballet” (82), and there are no references to any of the dance history scholars who have contributed significantly to our interpretations of modern dance history (e.g., Adshead-Lansdale & Layson 1994; Carter & O’Shea 2010; Desmond 1997; Foster 1986). As another example, Martha Graham is summarized, again without citation, as: “[Graham] created highly emotional, psyche-probing, profound multilayered dances with bodily tension/contraction and release and angular movements. She based her dances on myth, translating it into an exploration of the modern psyche and challenges for women” (84). My point is not to disagree with this summary, or others like it, particularly in this section of the book; rather it is to question why dance studies references are lacking. This point raises a question about the implicit devaluing of dance education, and states the significance of citing work that has contributed to the way we discuss and think about dance, in addition to citing work that has contributed to scientific hypotheses. Attention to this detail, such as who gets cited and why, is important if we are going to truly challenge the values of what counts as knowledge in the academy and beyond (see also Pakes 2009).

Despite these areas of concern, in Chapter 3, titled “Brain-Changing Dance Venues,” Hanna includes a relatively comprehensive descriptive overview of dance education programs, mainly for high school level students in the USA and Canada. Although she acknowledges that her summary will eventually be out of date, this sample of notable programs, such as the National Dance Institute, Anne Arundel County Public Schools of Maryland, and, my alma mater, Minnesota’s Perpich Center for Arts Education, is a useful reference for the programs that exist in dance education at this time. It is impressive to read of the diversity of these programs, which supports the argument that

there is some degree of dance education on offer, and a demand for it, primarily in the USA and Canada. Yet this section does not alter the claim that we need a great deal more. It is unclear why the section on university education is small (102–103) and not also included in the section, “Dance Teacher Preparation” (109), since presumably many dance teachers prepare by doing BA and BFA degrees in dance. Chronicling the breadth of university degree programs would be welcome in future work.

As dance scholars we still have much to do in the continued defense of the value of dancing to learn, learning through dance, and arguing the many ways that dance is a key part of a multifaceted approach to education. *Dancing to Learn* attempts to work toward this challenge. Although the book sometimes lacks the rigor and clarity of argument expected of academic texts, it is a genuine attempt to raise important questions about dancing to learn. It also brings together some of the research on dance and neuroscience, and advocates for dancing, watching dance, and reading about dance as valuable forms of learning in our lives.

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Notes

1. See writings on initiatives to change the acronym STEM (Science, Technology, Engineering, Mathematics) to STEAM (Science, Technology, Engineering, Arts, Mathematics). Advocating for this change is principally being done in order to challenge the most accepted national curricula subjects (STEM) to include the arts (STEAM), and thus modify the gold standard of education and ensure the instilling of creativity in learning, personal and industrial growth, and a number of other benefits that the arts uniquely contribute (STEAM Education 2015; STEM to STEAM 2015; White 2010).

2. As psychology professor Michael Anderson summarizes, “Instead of emphasizing formal operations on abstract symbols, this new approach [embodied cognition] focuses attention on the fact that most real-world thinking occurs in very particular (and often very complex) environments, is employed for very practical ends, and exploits the possibility of interaction

with and manipulation of external props. It thereby foregrounds the fact that cognition is a highly *embodied* or *situated activity* . . .” (Anderson 2003, 91). On the subject of embodied cognition related to dynamic systems theory and the enactive approach, see also Gibson (1979) and Noë (2004).

3. This is brain anatomy and physiology known at publication, since brain physiology is an area that is changing with rapidly advancing technologies, for example, functional magnetic resonance imaging (fMRI).

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