

Foreword to 'Embodied Wisdom: The Collected Articles of Dr. Moshe Feldenkrais'
by David Zemach-Bersin

I believe that the unity of mind and body is an objective reality. They are not just parts somehow related to each other, but an inseparable whole while functioning. A brain without a body could not think ... the muscles themselves are part and parcel of our higher functions.

Moshe Feldenkrais

Movement is life. Life is a process. Improve the quality of the process and you improve the quality of life itself.

Moshe Feldenkrais

Moshe Feldenkrais was one of the twentieth century's most original and integrative thinkers. Along with such seminal figures as Ida Rolf, Heinrich Jacoby, F. M. Alexander, and Elsa Gindler, Feldenkrais is considered one of the founders of the field that is today called somatics. The pieces included in *Embodied Wisdom: The Collected Papers of Moshe Feldenkrais* were originally published in independent journals between 1964 and 1998. A testament to the prescience of Feldenkrais's ideas is the fact that many of the concepts presented in this volume are as important, generative, and radical today as they were when they were first articulated. In these remarkable articles and interviews, Feldenkrais provides us with some of the most cogent and sophisticated arguments ever made for the biological and functional unity of the mind and body.

During most of the twentieth century, the dominant medical and academic model of the brain was that our habits are fixed or hard-wired, that each area of the brain has specialized, pre-determined functions, and that every day of our adulthood, our brain loses both neurons and the ability to learn new skills. In books, articles, and lectures from 1949 to 1981, Moshe Feldenkrais strongly challenged this point of view, not simply the theory behind it, but in practice, by developing innovative exercises and clinical applications that effectively demonstrated that—even when damaged—the brain has the ability to quickly change, and to learn new skills and recover lost functions.

Today, a new paradigm is taking hold in neuroscience, psychology, and rehabilitation: the concept of brain plasticity, or neuroplasticity, which posits that throughout our entire life span, our brain has the capacity to modify its organization and responses through

experience and learning. If Feldenkrais were alive, he would find today's research supporting neuroplasticity a sweet validation.

In April 1973, when I first observed Dr. Feldenkrais working, it was clear that he believed in each person's capacity to learn and change. Feldenkrais was teaching a month-long seminar in Berkeley, where I was a pre-med student at the University of California. After my regular courses, I would sneak into the classroom where he was teaching. What I saw there was extraordinary.

Each day, as part of his seminar, Feldenkrais would work for one hour with a middle-aged man named Edward, who had severe spastic cerebral palsy. On my first day observing, Edward's speech was nearly impossible to understand, his arms were hyperflexed and pulled up near his chest, his hands twisted inward, and he moved slowly with a halting, effortful gait. Since early childhood, Edward had received the best physical therapy and medical attention possible.

Edward would lie on a firm, padded table while Feldenkrais "worked" with him, gently moving him in mysterious ways, but clearly with great care, dexterity, intelligence, and deliberateness. Feldenkrais explained that he was using gentle, functionally oriented movement to help Edward's nervous system learn to change the messages it was sending to his musculature. After a few weeks, Edward's improvement was nothing short of miraculous. His speech became easy to understand, his arms rested by his sides, and his walking was much more comfortable and efficient. In short, his entire way of organizing himself had changed. I could not understand how this "healing" had occurred, yet I was incredibly excited and moved by what I had seen. By the end of the year, I would graduate from Berkeley, travel to Tel Aviv, Israel, and knock on Dr. Feldenkrais's door, eager to understand how he had created the "transformation" that I had witnessed in Berkeley.

The revolutionary concepts that served as the theoretical framework for Feldenkrais's work with Edward are explored in *Embodied Wisdom: The Collected Papers of Moshe Feldenkrais*. These unique writings have relevance in domains as diverse as neuroscience and theater, psychology and dance, physical therapy and music, education and rehabilitation, and infant development and athletic performance.

This volume presents Feldenkrais's most concise and cohesive statements on the theory behind his work, written in a warm and conversational tone. In addition, you will find interviews in which Feldenkrais discusses the early history of judo in Europe, and the application of his ideas to acting, and a transcript of an illuminating conversation between

Feldenkrais and noted Israeli scientist Aharon Katzir.

Originally a scientist working at the cutting edge of physics, Feldenkrais was a well-read and wide-ranging thinker. In these articles and interviews he draws from insights in physics, biology, embryology, psychology, semantics, and neurology, and makes speculative leaps about the brain and learning that have been verified by contemporary neuroscience. You will find that Feldenkrais almost always lets you in on his thinking process, allowing you to share in his logic, which often leads to surprising conclusions. At times he takes a highly abstract or theoretical idea and turns it like a Rubik's Cube in order to help us to see it from every possible angle. And, he nearly always shows us the everyday, concrete implications of the concept. Some might call his writing style Socratic or even Talmudic, and these may both be true, but it also represents Feldenkrais's background as a rigorous scientist. This is especially in evidence when he asks us to join him in thinking with a hyper clarity as he deconstructs such common, everyday words or concepts as "consciousness" or "thinking" or "self-image" or "energy" or "fulfillment." In these moments, we are treated to a classically educated, keen analytic mind, asking that we define our terms precisely, and demonstrating how this attention to specificity often leads us down paths we would not have otherwise explored.

Common to every article and interview in this unique collection is Feldenkrais's optimism about the capacity of each one of us—no matter our circumstances or limitations—to grow, change, improve, and become a more self-determined human being. This hopeful outlook is not so much strategic, as it is founded upon the strong evidence that of our brain's one hundred billion neurons, we use only a very small percentage, leaving the rest available for learning new ways of moving, feeling, thinking, and acting.

So, how did Feldenkrais, someone who had been a physicist for more than twenty years, come to develop the skills necessary to help Edward learn to move, speak, and function more easily? Great insights often emerge out of great struggle, and as it happened, Feldenkrais personally suffered from a debilitating problem for which medicine offered no solution. In his search for an answer to his own difficulties, Feldenkrais developed some of his most important ideas.

Moshe Pinchas Feldenkrais, DSc, was born in 1904, in a small town in a part of Russia that is today the republic of Ukraine. He had been given the middle name Pinchas in honor of his great-great-great-grandfather, Pinchas of Korets, a famous rabbi and one of the leading disciples of Rabbi Israel ben Eliezer, the founder of Hassidism, commonly

known as the Baal Shem Tov.

When he was thirteen years old, fleeing anti-Semitism and pogroms, Feldenkrais traveled from Russia, by foot, to the British Mandate of Palestine. There he worked, studied, and developed an interest in self-defense techniques. In 1930, he moved to Paris to study engineering and physics at the Sorbonne. In addition to his academic work, Feldenkrais studied Japanese martial arts and was one of the first people from the West to receive a black belt in judo. His appreciation of judo was illuminated by his understanding of the physics of movement—how the laws of motion and gravity impact the mechanics of movement. In 1933, Feldenkrais began working on his doctoral degree and was part of a team of scientists at the Curie Institute conducting research and publishing early papers on nuclear fission with Nobel Prize laureate physicist Frédéric Joliot-Curie.

With the German invasion of Paris in 1940, Feldenkrais escaped to England, where he spent the war conducting military research for the British government. During this time, due to knee injuries suffered over the years, Feldenkrais found himself unable to walk without great pain and difficulty. Modern arthroscopic surgery techniques had yet to be developed, and the top English surgeons whom Feldenkrais consulted offered him little hope of improvement through medical intervention. Feldenkrais decided to try to solve his problem by himself.

With the rigor of a scientist, Feldenkrais began a study of functional anatomy, applied the laws of physics and motion to everyday human movement, and explored the process by which we originally acquire our most basic motor functions. He eventually came to a remarkable practical understanding: that learning is the primary ingredient in our formation. He thought that if he could understand how learning actually takes place, then he might be able to change old habit patterns and restore lost functions, such as his own ability to walk. This quest would change the direction of his professional life.

Unlike most other mammals, we are born with a brain that is essentially *tabula rasa* (a clean slate); that is, apart from our most basic physiological functions and drives, we are not “wired-in” at birth. For nearly everything that we are eventually able to do as adults, we need a period of apprenticeship or learning. For example, most infants need ten to fourteen months before they can walk, and before walking is possible they must first learn to roll over, sit up, crawl, stand, and so on. From Feldenkrais’s point of view, every

child has to independently, organically learn how to solve concrete physical problems such as gravity, stability and instability, momentum, equilibrium, and so forth.

The functions that we identify as being uniquely “human” would not emerge if we were raised in a completely isolated environment. Unlike most other species, humans need more than simply air and sustenance. We require a human social world, one in which, over time, intention and successful action develop in correspondence to fulfilling meaningful goals in a context with others.

Feldenkrais developed a point of view that gives primacy to the nervous system and movement. He makes the extremely bold proposal that it is through the medium of movement that the nervous system makes the distinctions that lead to preferences or choices for particular actions or behavioral patterns.

The advantage of a largely unwired-in nervous system to a human being is that it enables tremendous flexibility in relation to behavioral options. In other words, we can learn to adapt to an unlimited number of cultural environments, languages, climates, and so on. By the same token, if we are not hard-wired for ideal movement or posture or behaviors, then we are vulnerable to making choices that may not be the best for us. Choices we make as children may not serve our long-term interests, resulting in neuromuscular ailments such as back and neck pain, neurotic inclinations, depression, and poor self-image.

Feldenkrais began to understand that there is an inseparable relationship between our social-psychological development and our motor development. As children, our psychic-emotional patterns or behaviors and our growing movement repertoire are not only being learned concurrently, but they are realized in the moment, as an integrated whole, through the musculature. These insights are explored in Feldenkrais’s first two books, *Body and Mature Behavior: A Study of Anxiety, Sex, Gravitation, and Learning* and *The Potent Self*.

In a perfectly matured body which has grown without great emotional disturbances, movements tend gradually to conform to the mechanical requirements of the surrounding world. The nervous system has evolved under the influence of these laws and is fitted to them. However, in our society we do, by the promise of great reward or intense punishment, so distort the even development of the system, that many acts become excluded or restricted.

Moshe Feldenkrais, *Body and Mature Behavior*

Believing that the adult brain has an abundance of potential for learning, Feldenkrais asked, what are the conditions in which a nervous system—or, rather, a person—can learn most easily, most successfully? In a bold original synthesis, Feldenkrais found the answer to this question in a little-known nineteenth-century discovery in psychophysics (the precursor to modern-day experimental psychology) known as the Weber-Fechner law, or The Law of Just Noticeable Difference.

In general terms, the Weber-Fechner law states that there is a constant ratio between the magnitude of a stimulus (for example, sound, light, muscular work, and so on) and the change in that stimulus that is needed for a person to notice a difference. In practical terms, what this means is that the greater the magnitude or intensity of a stimulus, the greater is the change needed in order for us to notice a difference; or conversely, as the intensity of the stimulus decreases, the order of change needed to notice a difference becomes smaller and smaller. Feldenkrais's explanation of the Weber-Fechner law is clear and concrete:

All of our senses are so built that we can distinguish minute differences when our senses are only slightly stimulated. If I were to carry a heavy load on my back, I could not tell if a box of matches were added to the load, nor would I become aware of it being removed. What is, in fact, the weight that must be added or removed to make one aware that some change of effort has occurred? For muscular effort or our kinesthetic sense, that weight is about one-fortieth of the basic effort for very good nervous systems. On carrying four hundred pounds, we can tell at once when ten pounds are added or removed from the load. On carrying forty pounds, we can tell a change of one pound. And everybody can tell with closed eyes when a fly alights on a thin match-like piece of wood or straw, or when it takes to the air again. In short, the smaller the exertion, the finer the increment or decrement that we can distinguish and ... The lighter the effort we make, the faster is our learning of any skill....

Moshe Feldenkrais, *Learning to Learn*, 1979

Feldenkrais understood that by reducing muscular effort, kinesthetic-sensory acuity is improved and it becomes possible for a person to make fine distinctions about what they are doing and to become aware of unconscious or unknown aspects of their physical

organization, movement, and action.

Feldenkrais realized that his inability to walk was not simply a matter of the poor structural integrity of his knees, but also of the “way” that he walked. In other words, his learned habits of movement were contributing to his problems. This is what Feldenkrais would come to call the general problem of “faulty learning.” He realized that if he could develop a practical means of applying the Weber-Fechner law with functional movement, he would have the means for optimizing the conditions for learning, improvement, and rehabilitation.

A fundamental change in the motor pattern will thereby leave thought and also feeling without anchorage in the pattern of their established routines. Habit has lost its chief support, that of the muscles, and has become more amenable to change.

Moshe Feldenkrais, *Awareness Through Movement*

Feldenkrais continued to refine his discoveries, and eventually restored his ability to walk. In the process, he developed two entirely original and distinct modalities for realizing his ideas: a one-on-one individual method eventually named Functional Integration, and a group method now known as Awareness Through Movement. In Awareness Through Movement, his discoveries were codified as highly structured self-explorations or guided learning experiments. In both modalities, fundamental or synergistic neuromuscular relationships are utilized to facilitate healthier, more efficient patterns of movement, and posture.

Feldenkrais returned to Israel in 1949, to conduct physics research at the Weizmann Institute and assume the post of director of the Electronics Department of the Israel Defense Forces. At the same time he continued to teach his group classes and develop the practical methods to apply his findings on the brain-body relationship. Chaim Weizmann, a fellow scientist and the first president of Israel, told Feldenkrais, “There are many others in physics who understand what you understand, but there is no one else who has the insights about the body that you do.” The effectiveness of Feldenkrais’s work came to be so well known that he finally left the world of physics research in the mid-1950s and started a clinic to help people with a wide range of difficulties, and performing artists seeking to improve their abilities.

Feldenkrais often said that Awareness Through Movement and Functional Integration are two sides of one coin, meaning that both applications are derived from the same overarching theory. He was constantly developing and testing both forms. Always foreground was his thesis that the nexus of learning, awareness, and movement provides the most

direct means for improving a person's well-being.

Through his daily clinical work over the next thirty years, Feldenkrais developed effective, ingenious, and innovative strategies for improving or restoring nearly every human function. He worked with internationally noted actors, musicians, and dancers, such as theater directors Peter Brook and Paul LeCoq, and musicians Yehudi Menuhin, Narciso Yepes, and Igor Markevitch, and spent so much time with his clinical practice and teaching that he published only one extensive clinical study, *The Case of Nora*. Fortunately we have nearly two hundred hours of his Functional Integration work on film, and in the more than one thousand experiential Awareness Through Movement lessons that he created, we have a written record of Feldenkrais's thinking as it developed.

Feldenkrais's first training of practitioners of his work took place in Tel Aviv and was completed in 1971 with thirteen graduates. During the early 1970s, Feldenkrais began to teach abroad in both Europe and the United States, and well-known intellectuals and performing artists took an interest in his ideas, including: political figures David Ben-Gurion and Moshe Dayan, anthropologist Margaret Mead, neuroscientists Paul Bach-y-Rita and Karl Pribram, physiologist Elmer Green, and psychologist William Schutz. With growing international attention, Feldenkrais began his second training of practitioners in 1975 in San Francisco with a group of sixty students. In 1980 he began his third training program in Amherst, Massachusetts, with more than 230 students from fifteen different countries. Since then, his work has continued to grow and now there are nearly ten thousand Feldenkrais practitioners in more than forty different countries.

When I knocked, unannounced, on Feldenkrais's door in early 1974, he generously allowed me to sit in his clinic for many months, watching him work with his students. He never used the word "patient," as he thought that it put the accent on a person's pathology and he wanted the emphasis to be on their potential to learn. What I saw during those months was no less amazing than what I had observed in Berkeley the year before: a woman with multiple sclerosis being able to abandon her cane, a severely spinal cord injured American able to give up his wheelchair for crutches, a seven-year-old Israeli boy who had never been able to open his left eye learning to open and close both eyes at the same time, a German cellist who had suffered a stroke learning to use his bowing arm once again, and a young Austrian girl with cerebral palsy learning to walk. I was privileged to study with Feldenkrais until his death in Tel Aviv in 1984, and find myself, still today, fascinated and engaged by his ideas.

The legacy of Dr. Moshe Feldenkrais has the potential to help millions of people who suffer from aches, pains, movement difficulties, and debilitating neurological problems, as well as performing artists and athletes hoping to improve their abilities. In this foreword, I have touched upon only a few of the implications and applications of Feldenkrais's work. I believe that areas such as physical medicine, physical therapy, education, and psychology have much to learn from Feldenkrais's theories and methods. I hope that the publication of this important and long overdue book will help bring his uniquely original and innovative ideas the recognition and the critical analysis they so deserve, and that readers will appreciate this small volume, which is so large in outlook and vision.

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