



BY CHAD ESTES AND JOHN ROBSON

QUALITY THROUGH

Movement

Paying attention to productivity means paying attention to human factors



COMPANIES ARE COMPLEX ORGANISMS. IT DOESN'T matter whether the company produces a tangible item or whether it provides a service; even the smallest company is an organism with many parts that must function harmoniously for the company to be successful.

Generally speaking, the larger the organism, the more complex it becomes and the more complex the different parts of the organization become. A manufacturer of widgets will have increasingly refined and complex substructures as the number of widgets produced increases. In order to thrive, the manufacturer's production, quality, finance, human resources and

sales departments have to cooperate and work together – and that is not to mention supporting services, such as caterers, cleaners and suppliers.

It is no secret that the key to improving quality is to improve the process through which the product or service is generated. It was long ago realized that quality cannot be inspected into a product and the concept of total quality management was born. It now seems so obvious that the responsibility for quality lies throughout the organization that it is difficult to comprehend how long it took for us to stop relying on inspection as the mainstay of the quality process.

quality through movement

Great strides have been taken over the years with strategies to improve quality and productivity – Six Sigma, kaizen and lean manufacturing, to name a few.

Why then have there not been equally significant advances made with the most complex part of the organization: the human component? We know what happens when things go awry – injuries, stress and mistakes. It is estimated that lost productive time caused by common pain conditions costs industry \$61.2 billion per year, 76 percent of which is because of reduced performance while at work. Between 1997 and 2005, back and neck pain increased by 4 percent and sufferers of this type of pain spend, on average, \$2,580 more on health care per year than those who do not have pain. Being in pain is stressful and is no doubt a major contributor to the approximately \$300 billion that stress costs American businesses each year.

There have been enormous advances in ergonomics that have helped employees remain comfortable and perform well. There is also an ever-increasing range of medical and other services available to treat people after an issue has arisen such as stress or back pain.

The science of ergonomics can prevent problems, and it is true that there are very efficacious treatments available for dealing with problems after they have surfaced. Ergonomics provides better materials for the body to work with, and medicine provides the means to correct a problem after it has manifested. The part that is missing is the improvement of the human system itself – the active development of total quality management for the most complex organism of all.

All systems up

In the middle part of the 20th century, Moshe Feldenkrais, a physicist, engineer and martial arts expert devised a method of improving the human system. A phrase often attributed to him is “Movement is life, life is a process. Improve the quality of the process and you improve the quality of life itself.” The key word here is *process*. The way that the human system functions is through a process of actions and reactions occurring in bones, muscles and organs. Any action can be broken down almost infinitesimally to a process of chemical reactions, but even at a much simpler level we know that there are simpler processes for doing something, and there are more difficult ways of achieving the same thing.

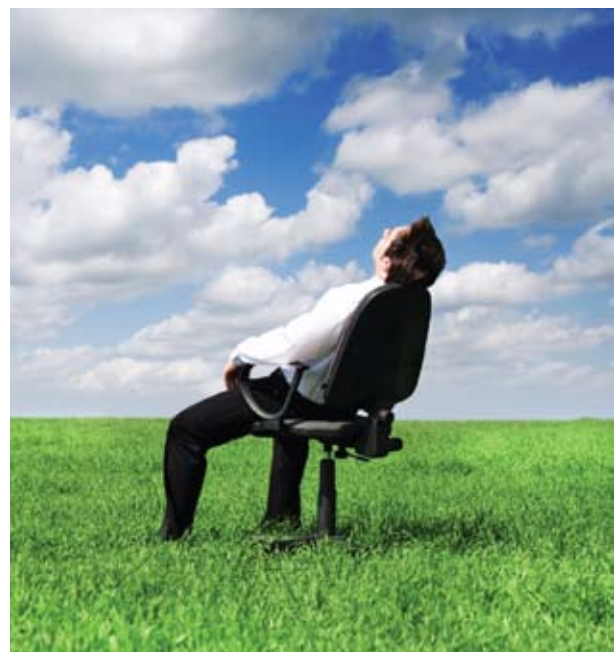
Imagine an action as simple as pressing a button. There are numerous things that go into pressing that button, such as visual processing, the conversion of food to energy, battling infection and the list could go on. For now, assume that all of those things are working adequately and consider just the

movement aspects. There are countless ways of pressing a button even if you only use the first finger of your right hand. The button could be pressed only moving the knuckle joint, wrist or shoulder. It could also be pressed by keeping all of these parts fixed while leaning with the torso. There are many more options than this and there are also all of the combinations of those options.

However you choose to press the button, two things are certain: you could do it more efficiently, and if you continue to do it the same way you will eventually be forced to do it differently (because of fatigue or an over-use injury). In this sense, pressing the button is like a manufacturing process: widgets can be made faster and more cheaply if the process is improved. We also know that any organization that does not continually improve its process will weaken and become less viable.

To continue with this analogy, we also know that if the manufacturing process is improved, a limiting factor will appear elsewhere. Perhaps the marketing department cannot find customers for an increased number of widgets or the shipping department cannot get the widgets to the customers. The human organism is like this, too; button pressing could be improved through strengthening the finger or somehow making the knuckle joint smoother. There may no longer be a problem in the finger department, but it is likely that a new problem would soon appear elsewhere such as the arm department or the shoulder department.

For the widget manufacturer to thrive and evolve, improvement has to take place in all departments. For this to happen, strong leadership is needed where all departments understand the mission and all improve and work together to meet



the company's objectives. In the case of the human organism, exercise or supplements will help, but the solution for real growth and improvement lies in the brain. The brain is the human body's leader, and like any leader it can do better. Under the proper conditions, it can increase its range of skills and it can direct the body in increasingly effective ways.

The brain controls more or less everything that the body does. It is where we think and it is where action originates. If we want to improve the process of human function and action, we have to improve the function of the brain.

The function of the brain is improved through learning. When we are born we begin learning, and as we learn our ability to act is enhanced and refined. We speak more clearly and increase our vocabulary because we learn to use our speaking apparatus (mouth, larynx, lungs) better and we learn more words. Speaking better means that our ability to communicate is better and we become more effective in the world. The same can be said for the way we walk, run, cook and play an instrument.

The most common ways of learning are through hearing and seeing. This is what happens in school; we listen to the teacher and we read books. It is a very effective way to learn and it is how knowledge has been passed on over time that has allowed us to progress continually in the sciences and arts.

We would not be where we are today in any field of endeavor if it were not for our ability to take in information and learn through our eyes and ears. When it comes to optimizing the human process, however, these two channels of learning are not enough. You can show or tell someone how to press a button or lift a box off the floor. You may even be able to get them to perform the action perfectly; that is, with the least amount of energy expended and the minimum possibility of injury. Unfortunately, the button may be at different heights relative to people's bodies or the size, shape and weight of the box may change. Problems can then arise because the person does not know how to perform the redefined action perfectly.

This is where the genius of Feldenkrais comes in. There is another channel through which we can learn, something all of us have done every day of our lives. All of us move all of the time whether we are doing jumping jacks or sleeping; there is always movement happening somewhere in the body. We learned to walk by moving; we know about the surface we are walking on by the movement in our feet. When we take something off a shelf, we know that we are holding it because the weight of the object changes the way that we move.

Introducing a new system

Movement is such a ubiquitous learning channel that most

of the time we don't even realize that we are using it. In this respect it is like air or gravity – it's there all the time.

Using finely designed movements performed in a sequential order, we can learn how to move better. These movement sequences are known as transformational movement lessons (TML) and are taught in a group setting. Participants are asked to perform a series of movements designed to bring greater awareness to their capabilities while working through a series of gentle, comfortable steps that involve thinking, sensing, moving and visualizing. This process facilitates the development of an enhanced awareness of habitual patterns and rigidities that may be causing limitations in movement. Participants expand their options for moving with increased sensitivity, learning to eliminate unnecessary effort, attend to their whole self and mobilize intention into action.

Unlike exercise programs, TML places emphasis not on strengthening or stretching muscles but addresses movement where it originates – in the brain. Participants learn to use their bodies more effectively and efficiently, leading to greater power and grace in movement. Improvements in balance, posture and physical comfort follow.

We can learn how to perform any given movement and variations of that movement better (pick up a box, pick up a different size and weight box). An even greater benefit is that we can learn to recognize the quality of movement within ourselves and continually refine and improve our actions as we actually perform them. The brain learns to organize movement better, and it learns to interpret the information coming to it more finely through proprioception and adjust to maintain optimal performance. It is as if the CEO has developed



quality through movement

a new skill, disseminated it throughout the organization, assimilated more feedback from organization members and then issued more instructions to improve the performance of the organization. All of this occurs on a continuous and ongoing basis.

The button presser finds that he not only presses the button more effectively and efficiently, but is also able to walk more comfortably, play an instrument better and stay out of pain in all areas of his life.

There are hundreds of movement lessons that were created by Feldenkrais, and there are thousands of practitioners throughout the world who have been trained to teach these lessons as well as develop lessons of their own. The work has been used to treat strokes, cure chronic back pain, teach children with cerebral palsy to walk, help musicians perform better and thousands of others to do better at whatever they choose to do. Feldenkrais died in 1982, but his work has been passed on and developed by those he trained. Perhaps most notably, his assistant, Anat Baniel, has evolved and amplified his work and applied it to specific audiences such as high performers (executives, athletes, musicians), the elderly and children with particular challenges.

Various studies have demonstrated the effectiveness of movement re-education sessions in a group setting. Dramatic reductions in pain, medical costs, depression and anxiety have been documented. Improved function two years after the completion of one of the programs was documented as well, including increased mobility and ability to relax. When these results are considered with the costs that businesses (and society) incur as a result of pain, it is easy to see that there is huge potential for savings that may be achieved through a program that is specifically designed to facilitate the development of better, more organized movement.

As if better movement in itself were not enough, it has been observed that when movement improves, other parts of the human organism also improve. Earlier, we mentioned that movement was something that all of us do all of the time. As well as move, there are three other things that we do all of the time: think, sense and emote. It has been found that if we improve movement, the other three things also improve.

When the quality of the button presser's movement improves, so does his ability to think, perceive differences and make better choices. He is able to experience more gradations of emotion, and he is better able to modulate his response to different situations. The senses become sharper as the ability to feel increases.

This expansion in the ability to think, feel and emote has not been exhaustively studied, and as far as we know there

have been no papers published of this phenomenon, but there is a likely explanation. When we wish to move a part of our body, activity occurs in the brain to direct the relevant muscles to contract. The better the movement is performed, the less energy is expended by the muscles. If a movement is painful and then ceases to be so, there is less input for the brain to process. There are more resources available to the organism because less of the motor and sensory cortexes are needed, and less chemical energy is required by the muscles. The organism has become more efficient and has more resources available for other things like thinking, feeling and emoting.

The human component is the most untapped resource in the majority of organizations. Huge effort has been put into inventory handling, equipment refinement, statistical controls and many more nonhuman aspects of widget production and service provision. Even a 10 percent increase in the ability of employees to perform would result in great increases in performance and efficiency.

Better movement means fewer injuries and less time lost. It also means that stress can be better controlled (think of all of the movement aspects of stress: shoulder contractions, changes in breathing). Is there anyone in any organization that would not be able to contribute more if they moved better or thought, felt and emoted in a more refined way?

Every organization has a largely untapped, enormous potential for breakthrough improvements in employee productivity, profitability and authentic sustainable growth. In order to tap into that potential and to thrive and remain competitive in today's environment, it is imperative that we begin to develop the most complex system in our organization: the human being. ❧

Chad Estes is a managing partner with ETM Consultants. His expertise is in the treatment and prevention of musculoskeletal disorders, ergonomics and strength and conditioning. Estes holds degrees in the fields of education, health and wellness, as well as advanced trainings in neuromuscular re-education, with certifications in both the Anat Baniel Method as well as the Feldenkrais Method. He has more than 12 years experience in health care.

John Robson is a managing partner with ETM Consultants. He held various positions as a systems analyst and software engineer during a 20-year career in the aerospace and pharmaceutical industries. Following a severe back injury, Robson turned his attention to the human system and its function. He is a certified practitioner in the Feldenkrais Method and the Anat Baniel Method, the holder of several advanced certifications in these fields and attributes his complete recovery from injury to this leading-edge neuromuscular approach.

Copyright of Industrial Engineer: IE is the property of Institute of Industrial Engineers and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.