

Improving the World - One Mind at a Time

By Heather Beers, a Salt Lake City-based freelance writer

Images, headlines, exclamations soar into the atmosphere and plummet earthward-news of nations wrestling, economies rising, poverty spiraling, entertainers dazzling, heroes falling, catastrophes looming, business trends booming. Satellites and fiber optics propagate in the informational ecosystem that now engulfs us. Required to adapt to this ever-changing environment are the young, the old, the rich, the poor, the leaders, the everyday workers.

The key to survival? The ability to process information.

Increasing our information processing capacity and efficiency is more important today than ever before. The rate at which we need to process information in today's high speed, information-packed, competitive environment, can be overwhelming.

Children are faced with challenges previous generations would have never imagined. Making matters worse, many children and adults must work unusually hard to do normal tasks, due to processing inefficiencies. The natural aging process-now impacting an increasingly older baby boomer population-erodes memory, even in the sharpest of minds.

Like a high-rise constructed by masons' bricks, much of a person's individual success is founded on cognitive building blocks, the ability to process basic visual and auditory information. Since individual success leads to that of a community, a nation-a planet, the quest for a better world could lie, literally, in the minds of every human being.

Sound too simple? Listen in.

How the Mind Learns

Everyday, the world's neuroscience community is identifying more about how our brains function. Countless studies reveal the ability to receive, store, process, and use information is through a series of cognitive ordering procedures called sequential processing.

The two basic building blocks of learning and memory are auditory and visual sequential processing. These building blocks are essential to listening, learning, reading and communication. Essentially, every mental process we perform is dependent on these processing abilities. And our capacity to process, learn new information, and form memories is realized through our brain's "structural plasticity."

For the sake of simplicity, the process of learning can be compared to the hanging of telephone wires. When new information enters in visually or aurally, the brain strings a temporary wire between connection points in the mind (formally, a reversible physiological change in synaptic transmission). These temporary, reversible changes are referred to as short-term memory. If information is repeated, accepted and absorbed, the "wire" is made permanent, creating long-term memory. Long-term memories then become the basis for higher executive order thinking,

affecting how information is analyzed, decisions are made, and actions are taken.

Can the Mind Be Improved?

To gauge an individual's cognitive functioning, psychologists measure the "digit span," or the number of sequential digits a person can take in, store, process, and recall in the correct order.

Low and high digit spans coincide with abilities in the following:

- academic function
- attention span
- behavior
- math and reading scores
- decision making
- interpersonal skills
- social maturity
- leadership abilities

For decades, the accepted premise has been that sequential processing increased one digit per year and stopped at the age of seven, leaving us with limited short-term working memory of 7 +/- 2 digits. The brain research community has long believed this function could not be changed or developed through intervention.

That premise is being challenged by leaders at the forefront of neurological development. ABT- Advanced Brain Technologies and its partner researchers are now convinced the development of brain structure and function can be accelerated throughout our lifetimes. This understanding enables a paradigm shift, affording a scientific basis to view individuals as having unlimited potentials, if provided with the opportunities necessary for neurological development.

Enhancing Worldwide Thought

ABT is working worldwide in an effort aimed at increasing the sequential processing function of society. Research indicates that up to 50 percent of the world's adult population is functioning with digit spans below 7, which represents the processing skills of a typical five or six year-old child. Increasing the average digit span by two, three, or even four would be equivalent to taking the population from a developmental/educational level of junior high school to that of a master's or doctoral degree.

"At the end of the day what we want to do is help people make better decisions in their lives through improved processing," says Alexander Doman, president and CEO of Advanced Brain Technologies.

ABT develops neurosensory training products that maximize human potential. Some of its primary products include Sound Health[®], Music for Babies[™] and The Listening Program[®], a Music-Based Auditory Stimulation[™] method.

Just how do music-based programs improve the brain's functioning? "The brain is always looking for patterns in information," explains Doman. "The neurosciences confirm in numerous studies that music and language share much of the same neural substrate in the brain, that the same parts of the brain process music and language together. If language is communication, we can use music because it's accessible and easy to process; it has form, structure that the brain recognizes."

"Strengthening" the Mind

ABT's latest undertaking has been to pioneer a comprehensive Web-based training system, BrainBuilder[®] (www.brainbuilder.com) to improve individual cognitive functioning. With just 15 minutes of visual and auditory exercises daily, people can tap into the ability to improve their thinking-and arguably, their lives-from desktops worldwide.

"BrainBuilder works on the concept of brain plasticity. It offers repetitive training at the right frequency, intensity and duration, until we see a permanent structural change in the brain. Short-term results are noticeable within a few weeks, but of course, long-term benefits take place over the course of months and are maintained and furthered through ongoing use. It's analogous to building muscle or losing weight-improving the brain is like implementing a physical exercise regime," says Doman.

BrainBuilder.com offers diverse cognitive exercises providing systematic workouts designed to improve the capacity to process information with greater ease, speed and efficiency. Users find the exercises are short, fun, and individualized. With unlimited levels of training, BrainBuilder adapts to users' needs, whether working to overcome a learning or attention difficulty, achieve peak mental performance, or prevent aging of the brain.

Along with exercises for daily cognitive training, BrainBuilder.com offers a "Brain Diary" section to help users monitor the impact that general health, sleep, diet, exercise and focus have on their mental performance. Also, a "Personal Trainer" resource enables users to track and maximize their use of the technology.

Results demonstrate that BrainBuilder's primary benefits include improvements in the following brain processes

- attention and concentration
- learning and memory
- language and communication
- executive functions

Along with many proponents, ABT's approach is acclaimed by neurology experts, such as Dr. David Perlmutter, M.D., board-certified neurologist, recipient of the seventh Linus Pauling Functional Medicine Award, and author

of scientific publications included in top journals, such as The Journal of the American Medical Association, The Journal of Neurosurgery, Archives of Neurology and The Southern Medical Journal. In his 2004 book, The Better Brain Book, Perlmutter supports the neurological principles and improvements that are at the base of ABT's BrainBuilder technology.

Enabling Change

ABT is committed to its mission of improving the world's thinking, perpetually adding to BrainBuilder's tools, as well as taking its translation beyond current English and Spanish offerings. ABT is a privately held company that invests in research and development, producing revolutionary patent-pending technology, such as its Spatial Surround™ system for improved auditory processing.

"Our mission is to help maximize people's potential, so they make more informed decisions, so they can improve the world's society," says Doman. "In this modern era, the ability to extend our 'brain longevity' is critical. Whether it's taking an executive to a higher level of decision-making ability, helping an inner city worker manage everyday issues, raising a child's developmental capacity, or improving the quality of life for a senior citizen, we're passionate about helping individuals make a difference in their lives."

And that improvement just may make all the difference in an increasingly complex, information-saturated society.