

An article by
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Emotional evolution: The path to personal and financial enlightenment

*"The final mystery is
oneself."*

—Oscar Wilde

Self-understanding is as important as market understanding. I've made this statement so often it has nearly become the defining mantra of my career. And while I've made considerable progress in both areas, I can safely say that my market mastery has surpassed my ability to control my emotions; I've developed an actionable insight into the patterns that reveal advantageous opportunities in unfolding market structure, but I am still learning how to more effectively—and consistently—act on my market understanding.

As much as we have learned about what goes on inside the cranium, the human brain is still in many ways a mystery. Until recently, for example, it was thought that brain cells stopped regenerating after a certain age. Now we know that the brain continually recreates itself, as long as new information is encountered, processed, and engaged. Human thoughts and emotions emerge from an extraordinarily complex network of interconnections within the brain, and insight into these relationships continues to evolve all the time.

It must be said that my knowledge in this area is imperfect at best, but I have read enough to grasp at least the rudimentary framework of the way the brain works. This brief article does not pretend to be a treatise on brain science; what I hope to do is at least engender in you an awareness of the mental and emotional challenges ahead, and to give you a head start down your own path of self-discovery.

In the words of Scottish philosopher Thomas Carlyle, *"The best effect of any book, is that it excites the reader to self-activity."*

We all crave predictability

Unfortunately, the universe makes sure that everything is always different, even if the difference is only slight. This lack of predictability is emotionally unsettling, and we all deal with this divide—the desire for stasis, the necessity of change—in a completely unique manner. That's where *fluid intelligence* comes to the rescue; we all have the innate ability to mentally adapt to life's mutability. And like all abilities, fluid intelligence can be studied, practiced, and honed. But as the saying goes, it's not *practice* that makes perfect, but *perfect practice*. In the markets, as in life, nothing ever happens exactly the same way, so it is vital to amend this truism to declare: perfect practice *with constant variation* makes perfect.

This might sound like hyperbole unless you're a brain surgeon. But think for a moment about any endeavor you admire. Be it sports, music, or theoretical physics—to perfect any activity requires the same regimen of disciplined study and practice over an extended period of time. What does Michael Jordan share in common with Yo Yo Ma and Albert Einstein? *Perfect practice with constant variation*.

There is ongoing debate about how much we can learn without experience. And it is certainly true that study and observation can assist and shorten the learning process. In his book "A Theory of Fun for Game Design," Raph Koster explains that good readers can feed information directly into their subconscious, intuitive mind. And one of the most remarkable findings of [neuroscience](#) in the last decade is the discovery of the "mirror neuron," a [neuron](#) that [fires](#) both when an individual performs an action, and when a separate individual observes that action. Essentially, the neuron in the observer "mirrors" the behavior under study, as though the observer himself were performing the action¹.

¹ A compelling support point for learning materials like this article, as well as books like "Mind Over Markets" and "Markets in Profile," which get your mirror neurons firing in myriad ways as you encounter both theoretical frameworks and tactical trading instruction.

This is all compelling science, but returning to the core theory of this article—that self-understanding is as important as market understanding—we must qualify experience, whether through action or observation, with an individual's ability to *act* on that experience. And our ability to act is always affected by the ever-changing tapestry of human emotion.

The brain is remarkably mutable, and with practice, it can be trained to respond in more predictable ways to unpredictability.

Find and follow your path

If you want to be a successful trader/investor, you've got to start by accepting the fact that you must dedicate yourself to a journey that involves both study and continual self-discovery. In short: *perfect practice with constant variation*. When interviewed, experts in every field report that their practice and preparation time exceeds the time they are actually performing by many, many multiples. And that to remain a "top performer" requires a constant focus on maintaining emotional control under evolving, stressful conditions.

Speaking of stressful conditions, the markets are constantly bombarded with new information: formal economic releases, pronouncements by politicians, predictions by economists, inventory imbalances, forced liquidations (such as occurred when Long Term Capital got into trouble), variations in the price of oil or gold, and the list goes on *ad infinitum*.

It's currently in vogue to talk about how we're hard-wired to exhibit certain behaviors, ranging from our belief in God² to the way we invest our money. This often leads to a discussion of the "flight or fight" urge we inherited from our early ancestors; the emotional part of the brain processes information unconsciously when we're confronted with perceived danger. Many articles posit that the emotional side of the brain is the "default brain," overriding the other, analytic side of the brain under duress. If you have ever traded, you certainly appreciate the

² "Why God Won't Go Away," Andrew Newberg, M.D., Eugene D'Aquili., Ph.D., and Vince Rause—an extremely interesting read with layman descriptions of how the brain works.

magnitude of the stress that develops—and quickly—which can decimate the rational, analytic framework you so carefully prepared.

Another discussion centers around "old brain vs. new brain," the old brain being defined as the emotional, flight-or-fight tendency, which trumps the highly developed, cognitive processing of the new brain. Something unexpected happens in the market and logic goes out the window, along with our hard-earned cash.

You must enlist *both sides of the brain* in order to make good trading and investment decisions—which is just another way of saying you must operate from a whole-brained perspective, combining your market understanding with a highly developed self understanding, so your reason doesn't bolt when emotions emerge. There are numerous studies that show how patients that have severe damage to the emotional side of the brain are still able to reason, very logically, with the analytic side of the brain. Unfortunately, these individuals have no ability to *implement* these reasonable conclusions. How many times have you identified a trade, only to find that you couldn't pull the trigger—implement—when the time came? Balance is required to *complete* the decision-making process.

Out with the old, in with the new

While Koster, the author mentioned above, acknowledges that learning can begin with books, he concludes (my italics): "When our brain is really into *practicing* something, we'll dream about it. This is the intuitive part of the brain burning neural pathways into our brain, working on turning newly grasped patterns into something that fits within the context of everything else we know." Or, as Brett Steenbarger puts it: "Expertise is skill internalized to the point of habit."

This brings me to a most vital point: while I accept that the brain tends to be hard-wired, I also believe that it is possible to *rewire your brain*. This belief is more ably summed by Richard Restak, M.D., in his book, "Mozart's Brain and the Fighter Pilot: Unleashing Your Brain's Potential":

A piece of information is really defined only by what it's related to,

and how it's related. There really is little else to meaning. The structure is everything. There are billions of neurons in our brains, but what are neurons? Just cells. The brain has no knowledge until connections are made between neurons. All that we know, all that we are, comes from the way our neurons are connected.

The brain developed to help us find food, shelter, and mates for reproduction. But as time has unspooled and conditions have changed, the brain has evolved to protect us from an ever-changing array of hazards—once the hungry bear, now the taciturn colleague bent on undermining our self-confidence. The point is that the brain is remarkably mutable, and with practice, it can be trained to respond in more predictable ways to unpredictability. Newberg D'Aquil and Rause revealed that as societies evolved, humans were able to maintain control and equilibrium by developing cities, governments, and culture, and how these functions were accomplished through the brain's remarkable development of "...creativity, genius, insight, and inspiration."

Many of the reference texts mentioned in this article reinforce the notion that the brain never stops evolving and learning, constantly constructing new neural networks. The more you ask of the brain, the more neural networks are constructed. Which brings me to the fundamental challenge you must face as a trader/investor: learning to override old networks that have become obsolete—negative patterns that hinder your ability to control the way emotions affect your power to act—and creating *new neural networks* that enable a more rational, actionable thought process in the face of mounting stress.

Conjured emotions were playing havoc with my ability to be present for the events actually unfolding in the market.

But before we can begin to override old neural networks and build new ones, we need to be aware of the underlying forces at work; if you don't know which thought processes are hindering your development, you can't possibly

improve upon them. Therefore, I strongly recommend that you keep a trading diary, not of your trades, but of the thoughts and feelings that wash over you while you're trading. For example, reviewing my trading journal revealed my tendency to focus on the feeling I *might* get if I exited a losing trade only to have it turn out to be a big winner. I had to reconstruct my thought processes—my neural networks—in order to consciously stop what was essentially playing make believe, conjuring emotional states that related to future events that might not even occur. These conjured emotions were playing havoc with my ability to be present for the events *actually unfolding* in the market. I also learned, over time, that I needed to learn to acknowledge that the best trade I could possibly make, in certain situations, was to simply get out of a losing trade.

Another recurring challenge I identified from studying my trading journal was the cognitive dissonance I encountered when auction-generated information required me to trade opposite a new piece of fundamental information. The resulting surge of emotional discord tended to hinder my ability to stay attuned to real-time market activity, impeding my ability to follow my instincts³. Over time, I trained myself to quell this kind of dissonance and make the trade I had foreseen, ignoring the conflicting information—usually only "conflicting" for timeframes other than my own. But anyone who has traded will attest to the difficulty in staying focused on *anything* when the herd goes thundering off in one direction.

This brings up the importance of planning—it must be said that methodical planning is positively essential to avoiding the emotional pitfalls inherent in this type of situation; if you haven't conducted your own research off-line, when the market is closed and you can calmly sort through the data for telling patterns, then you will have no ballast when the information maelstrom and shifting market currents tend to

³ In the engaging book "Blink: The Power of Thinking Without Thinking," [Malcolm Gladwell](#) makes a strong case for trusting your instincts—once you've become an expert—because your brain has an incredible ability to draw quick, accurate conclusions based on pattern recognition. This phenomenon will be addressed in a future article.

swamp your ability to make calm, rational choices.

The networks we build have to be able to handle, with fluid intelligence, an endless stream of random events, without the emotional backlash that can confound the most well planned trading approach. And the shorter your trading horizon, the more important it is to develop this skill, or complex neural network, in order to be fleet of mind and quick to action.

Here's some good news: on your path to whole-brained investing, your brain will more naturally bridge its fundamental bifurcation over time. Gene D. Cohen, M.D., Ph.D., demonstrates in his book "The Mature Mind: The Positive Power of the Aging Brain" that as we age, experience does a better job of synthesizing both hemispheres of the brain, resulting in better decision-making.

So where do you start?

I suggest you begin by becoming a student of the brain, an endeavor that happily involves reading any number of fascinating books, like the ones I've listed here. These books are not only educational, they're fun and often exhilarating to read. And just as with all new exploration, this course of discovery could lead you to realizations well beyond the financial realm. I've compiled the following list as a primer, but strongly suggest that you also conduct your own research, as you'll gravitate toward the material you find most compelling.

Mozart's Brain and the Fighter Pilot: Unleashing Your Brain's Potential

Richard Restak, M.D.

This book is as fun to read as the title makes it sound. The New York *Times* is quoted as saying, "A personal trainer for your brain." Sample chapters:

- Develop your powers of metacognition: thinking about your thinking
- Turn you feelings and emotions to your advantage
- Develop a tolerance for uncertainty and ambiguity

- Think of your brain as the creator of incredibly rich and fascinating montages
- Train your powers of logic

A Theory of Fun for Game Design

Raph Koster

In the second chapter, entitled "How the brain works," Koster addresses the following, without mentioning a single component of the brain except neurons (and then in a completely non-technical manner):

- The place of psychology and math in game design
- The brain is "mostly a voracious consumer of patterns, a soft pudgy gray Pac-Man of concepts"
- The brain is actively hiding the real world from us
- "Cognitive theory" is just a fancy way of saying "how we think we know what we think we know"
- The brain notices a lot more than we think it does

Why God Won't Go Away: Brain Science and the Biology of Belief

Andrew Newberg, M.D., Eugene D'Aquili., Ph.D., and Vince Rause.

Heralded as "A wonderful assessment of the brain and its activity," this book was included because of its potent description in chapter two, "Brain Machinery: The Science of Perception," and all of chapter three, "Brain Architecture: How the Brain Makes the Mind."

The Mature Mind: The Positive Power of the Aging Brain

Gene D. Cohen, M.D., Ph.D.

The opening quote from James Trefil, physicist and author, is a great starting point: "Your brain never stops developing and changing. It's been doing it from the time you were an embryo, and will keep on doing it all your life. And this ability, perhaps, represents its greatest strength." This book does an excellent job of reinforcing our understanding of brain cells (neurons) and how they form and develop, as

well as the mind/brain relationship. In addition, many old myths are re-examined:

- The brain is continually resculpting itself in response to experience and learning; new brain cells do form throughout life
- The brain's emotional circuitry matures and becomes more balanced with age
- The brain's two hemispheres are more equally used by older adults

Fooled by Randomness: The Hidden Role of Chance in the Markets and in Life

Nassim Nicholas Taleb

This book is simply a great read. I have included it here because it addresses how inept our logical mind is at making odds-based decisions, a theme that occurs in several of the publications listed above. Successful trading and investing is about odds, or what I refer to as "asymmetric opportunities."

Enhancing Trader Performance: proven strategies from the cutting edge of trading psychology

Brett Steenbarger

Steenbarger writes from a unique perspective—he is both an active index trader and Clinical Associate Professor of Psychiatry and Behavioral Sciences at SUNY Upstate Medical University. He has also served as Director of Trading Development for Kingstree Trading, LLC, in Chicago. Some of the chapters I found most illuminating include:

- Behavioral Techniques for Enhancing Performance
- Cognitive Techniques for Enhancing Performance
- Performance Dynamics
- Strategies for Cultivating Competence
- Finding Your Performance Niche As a Trader

Recap

Experienced, top-step traders are universally aware of the crippling effect emotions can have on successful trading. They have learned to

cope with their own emotional constitution, rejecting emotional duress as a disability. Successful traders would also agree that understanding emotions and their affect on behavior is just as important as understanding market behavior. In fact, self understanding may be the most important element in the latter stages of becoming an expert trader. The vital nature of this fact becomes apparent when you read that most market participants lose money, to the benefit of a select few. Furthermore, based on my own observations, I believe that the top 20% are not the same individuals year after year, as many succumb to the ever-present emotional traps that can hamstring even the most triumphant career.

Universities are under pressure to reduce the time it takes to complete an MBA program, and this same demand exists in all manner of educational programming for traders—everyone wants immediate gratification. As a result, the focus is often placed on tactics and mechanical trading programs, rather than experience-based, intuitive knowledge. Of course, this misguided desire to short-change the learning process plays right into the hands of the top 20%; the vast majority of those who attempt to trade fail to make money, and I believe that emotional immaturity is one of the main causes of this failure.

If you want to collapse the time it takes to become a successful trader, then I suggest you begin with the quest for *emotional control*—it's easier to grasp the workings of the market than it is to develop true insight into yourself, and how emotions affect the way you interact with the world.