

Finding the Zone: New Perspectives on the Mental Game of Trading

Brett N. Steenbarger, Ph.D.



www.fxtradingmethods.net

This is a draft of an article that has appeared in the December, 2002 issue of SFO Magazine. The actual article can be accessed by registering at the SFO site:

www.sfomag.com

A number of recent books have emphasized trading as a performance activity, in which mental state is a key element in success or failure. So prevalent is this view that two separate books with the same title—*Trading in the Zone*—have appeared in the last two years. What is this “zone” and how can traders reach it with consistency? In this article, I will review ideas about the zone from a variety of sources, including new research in cognitive neuroscience, and spell out the implications for futures and options traders looking to improve their mindsets—and their profits.

Understanding the Zone

The idea of a performance-enhancing zone originated neither in athletics or trading, but in the philosophy of Zen Buddhism. In the 1930s, Eugen Herrigel traveled to Japan to learn Zen through the practice of archery. Nearly two decades later, his book,



www.fxtradingmethods.net

Zen in the Art of Archery, popularized the notion of achieving excellence through mental discipline. His book was the inspiration for the popular novel *Zen and the Art of Motorcycle Maintenance* written by Robert Pirsig. Interwoven in Pirsig's story of a father and son rediscovering each other on a motorcycle journey is a serious exploration of the experience of "quality". Traveling on a cycle, Pirsig explains, possesses a different "quality" from driving a car. In the latter, you are always watching reality through a frame, shut inside a compartment. On a cycle, he writes, you are "in the scene, not just watching it anymore, and the sense of presence is overwhelming." This fusion of actor and act, performer and performance, is experienced as "the zone".

Crucial to the philosophy of Zen—and to the accounts of Herrigel and Pirsig—is the idea that our normal state of consciousness ruins the quality of the Zen experience. As soon as we consciously think about our performance, we are no longer one with it. Trying harder at a task only compounds this separation. The discipline of the Zen archer can be found in the performer's ability to still the mind, remove mental interference, and allow instinctively honed skills to manifest themselves naturally.



www.fxtradingmethods.net

In their books *Trading in the Zone*, authors Mark Douglas and Ari Kiev emphasize the importance of focus and concentration in reaching a state where trading flows without seeming effort. Both authors view the zone as an outgrowth of trading discipline and a positive mindset. Once the trader lapses into patterns of fear, greed, and frustration, the zone is lost and instincts born of long hours of observing market patterns cannot emerge. For the trader, as for the Zen archer, turning off the mind is a crucial element in success.

But how valid is this notion of the zone? Do elite performers in archery, trading, and other fields of endeavor truly find their success in Pirsig's state of "quality"? This is where research provides surprising answers.

Creativity and the Zone

Abraham Maslow was one of the first psychologists to study healthy, high-functioning individuals rather than mentally ill ones. His investigation of "self-actualizing" people—those who were unusually creative, productive, happy, and



www.fxtradingmethods.net

fulfilled—led to several important discoveries. Foremost among these, he found that self-actualizing people report a significantly greater number of “peak experiences” than the average individual. These peak experiences, he explained, have an almost mystical quality, in which the person feels suddenly at peace, at one with the universe. Invariably these experiences arrive during moments when the self-actualizing person is immersed in an activity of personal significance. Interestingly, they emerge naturally and spontaneously, not by conscious design.

Could Maslow’s “peak experiences” refer to the same mind state noted by Herrigel in Zen archery, by Pirsig in his exploration of “quality”, and by traders who have experienced “the zone”?

Research by University of Chicago psychologist Mihaly Csikszentmihalyi would answer in the affirmative. Studying unusually creative, successful individuals across a variety of disciplines, Csikszentmihalyi found that their work activity is accompanied by a state of “flow”. This flow state is experienced as inherently enjoyable, in which workers are so immersed in their tasks that time seems to melt away. They lose awareness of themselves and their settings, becoming one with their labors.



www.fxtradingmethods.net

In his book *Creativity: Flow and the Psychology of Discovery of Invention*, Csikszentmihalyi identified nine characteristics of work activities that yield the flow experience (See Figure One). He found that challenging tasks with clear goals and immediate feedback provide the greatest intrinsic pleasure. Summarizing these studies, Csikszentmihalyi writes, “Every person we interviewed said that it was equally true that they had worked every minute of their careers, and that they had never worked a day in all their lives. They experienced even the most focused immersion in extremely difficult tasks as a lark, an exhilarating and playful adventure.” He describes performers in the zone as “programmed for creativity” because their pleasure-pain mechanism leads them to seek ever-greater productive challenges. (See Figure One at the end of this article for a list of characteristics associated with “the zone”).

What makes the creative, successful, self-actualizing person unique, then, is not just the presence of “peak experiences”, “flow”, or “the zone”, but the ability to access and sustain this state with regularity. This is only possible, Csikszentmihalyi asserts,



www.fxtradingmethods.net

when people intrinsically love what they are doing. The trader who is primarily motivated by factors extrinsic to the markets themselves—by a need to prove himself, a desire to avoid failure, or urges for fame or fortune—is less likely to find the zone than the trader who finds the markets fascinating in their own right. From the Maslow-Csikszentmihalyi perspective, it is the trader who is “programmed for creativity”—who finds intrinsic enjoyment in the rigors of studying and trading market patterns—that is most likely to develop unique, winning trading strategies.

Exemplary Achievement and the Zone

Persistence of effort fueled by intrinsic love for one’s work seems to be a formula for success across a variety of disciplines, not just trading. Studies supporting this conclusion date back to Francis Galton’s 1869 work on *Hereditary Genius*. Investigating eminent creators, Galton found that these high-functioning individuals were capable of performing large amounts of highly laborious work, as if they were “urged by an inherent stimulus”. This “laboring instinct”, Galton believed, was a major factor in determining success or failure.



www.fxtradingmethods.net

Subsequent research has confirmed Galton's early conclusions. Psychologist Dean Keith Simonton of the University of California at Davis, in his book *Greatness: Who Makes History and Why*, explains of highly productive creators, "These individuals are driven by huge motivational forces that far eclipse the impetus behind less accomplished colleagues...Geniuses cannot spend so many hours without an inherent passion for what they do". The reason the successful people are successful, Simonton found, is that they produce more than their colleagues: more works of art, more scientific experiments, more political initiatives. Because of this productivity, they are more likely than the average person to hit the jackpot and stumble across a truly meaningful contribution.

These findings have significant implications for traders of futures and options. A trader's productivity might be measured, not just by his or her equity curve, but in the number of unique and viable trading strategies that can be generated. The trader motivated by an intrinsic fascination with the markets is constantly working on the markets, seeking a tradable edge. A developer of 100 mechanical systems, on average, is



more likely to come up with a robust trading method than a trader tinkering with the canned “systems” that accompany many charting software programs. Similarly, the discretionary trader who has observed and paper traded thousands of days of market action is more likely to internalize tradable patterns than the part-time trader. *The zone is important, not just because it blocks negative emotions from trading, but because it provides the motivational fuel for achieving market mastery.*

The hypothesis worthy of consideration, then, is that the factors underlying trading success are similar to those underlying success in other fields of endeavor. The successful trader, like the scientific genius or great artist, attains a state in which effortful activity is experienced as inherently pleasurable. This state of flow—what traders know as the zone—blurs the distinction between work and play, fueling an extraordinary level of creative effort.

This hypothesis fits well with the research of K. Anders Ericsson, who has found that successful performers in sports, the arts, and sciences are distinguished by the amount of intensive, deliberative practice they devote to their disciplines. As Ericsson



www.fxtradingmethods.net

reports in his book *The Road to Excellence*, there appears to be a lawful, linear relationship between the amount of time spent in high-quality practice and the performer's ultimate level of achievement. Significantly, many of the characteristics of high quality practice, as observed by Ericsson, overlap the factors that generate the flow state, including challenge, clear goals, and rapid feedback. *It appears that exemplary performers structure their practice in such a way as to maximize flow/zone states, thereby sustaining their motivation for hard work.*

Ericsson observes that effort alone is not enough to generate the zone. Physical exertion by itself, for example, does not ensure a pleasurable experience. Rather, it is the specific effort of mental concentration that generates an altered state of consciousness and heightens learning and performance. When a musician is immersed in her craft, Ericsson notes, she can generate a flow experience. When that immersion is interrupted by coaching, the zone is lost. As Herrigel discovered in his investigation of Zen archery, it is not possible to be at one with an activity and simultaneously concerned with the activity's outcome. If traders are to find the zone, it can only be through the highly focused concentration that occurs during trading itself. *While positive thinking and*



www.fxtradingmethods.net

trading discipline are necessary for reaching the zone, they are not sufficient. Sustained mental effort appears to be the key.

Cognitive Neuroscience and the Zone

What is happening in the brain when traders are in their zones? While studies have yet to be conducted measuring brain activity during actual trading, we do know quite a bit about the brain activity associated with sustained mental effort thanks to imaging studies and investigations of patients with localized brain injuries.

This research suggests that attention, concentration, and sustained mental effort are associated with a high level of activity in the brain's frontal lobes. In his book of the same title, neurologist Elkonon Goldberg refers to the frontal lobes as *The Executive Brain*. When people need to coordinate complex activities, such as generating and executing a trading plan, the frontal lobes receive a disproportionate share of cerebral blood flow. The frontal lobes, neurologist Oliver Sacks writes in the foreword to Goldberg's book, "are crucial for all higher-order purposeful behavior...The intentionality of the individual is invested in the frontal lobes".



www.fxtradingmethods.net

When there is injury to the frontal lobes, the result is a decline in the ability to carry out purposeful behavior. Neurologists refer to this as the “dysexecutive syndrome”, and it is typified by emotional interruptions of intentional activity, impulsivity, and distractability—qualities not unlike those seen in attention-deficit hyperactivity disorder (ADHD).

Figure Two summarizes characteristics of successful and unsuccessful traders derived from writings on trading psychology. These include my own recent investigations with Linda Raschke, in which we surveyed the traits of 64 active traders. Notice how the parallels between the successful and unsuccessful traders mirror the differences between individuals who have intact versus impaired frontal lobes. Could it be that the conditions associated with frontal lobe activation—the intensive concentration and mental effort of the zone—are also the stuff of which good trading is made? (See Figure Two for a comparison of characteristics distinguishing successful and unsuccessful traders).

Research supports such a conclusion. Arthur Shimamura at the University of California at Berkeley summarizes a series of studies that identify the role of the



prefrontal cortex as one of “dynamic filtering”. The frontal lobes allow us to carry out intentional, complex tasks by filtering out extraneous stimuli. This permits us to keep plans firmly in working memory while we carry out the specific tasks associated with those plans. Among the stimuli that are filtered out by frontal activity are emotional experiences. Activation of the frontal lobes by remaining focused on planful, intentional trading—i.e., trading in the zone—turns out to be among the most effective strategies for eliminating emotional interference with decision-making.

Interestingly, the frontal lobes tend to be more involved in novel tasks than routine ones. When a skill is first learned, blood flow to the frontal lobes is at its greatest, and is centered in the right brain hemisphere. As the skill becomes automatic, the flow shifts to other brain regions, particularly in the left hemisphere. This makes sense, since the greatest attention and mental effort are needed to process new stimuli. Once a task is routine, such as driving a car, it no longer requires the participation of the brain’s executive center.



www.fxtradingmethods.net

Experienced futures and options traders know that patterns in the markets are never static. The patterns one finds in a low volatility, bracketing market are different from those observed in a trending, volatile environment. In his book *The Education of a Speculator*, well-known trader Victor Niederhoffer refers to this phenomenon as “ever-changing cycles”. To the extent that market patterns shift over time, traders are confronted with ongoing novelty. *Trading can never become a wholly automatic task, as the identification of new patterns requires the effortful involvement of the brain’s frontal lobes.* This conclusion suggests that the capacity to sustain mental effort is a necessary ingredient in ongoing trading success, allowing traders recognize and exploit ever-changing cycles before they melt away. It also helps explain the common understanding among traders that one must filter out emotions to be successful. To the extent that one is immersed in greed, fear, or frustration, the zone is lost and novel patterns cannot be identified and exploited. Temporarily, it is as if the trader functions with a dysexecutive syndrome or ADHD, reducing the capacity for intentional behavior.



This brings us to a second, important hypothesis: *The experience we call “the zone” is an altered state of consciousness that accompanies ongoing activation of the brain’s frontal cortex. It facilitates accelerated learning by enabling us to sustain effortful, focused attention.* As I emphasize in *The Psychology of Trading*, the zone can be thought of as the “second wind” of consciousness. It is a by-product of sustained, high-quality effort that becomes a motivational state in its own right. Recognition of that fact opens the door to new and promising strategies for trading psychology.

Finding the Zone: Strategies for Traders

How can traders improve their ability to operate within the performance-enhancing zone? Several strategies can be derived from the research covered to this point:

1. ***Deliberative Practice*** – The trader can structure practice sessions in such a way as to mirror the conditions needed to produce flow experiences. This means that practice sessions should: have clear goals; be sufficiently challenging to require a



www.fxtradingmethods.net

2. high degree of mental effort; offer prompt and accurate feedback; and proceed with a minimum of distractions. Such practice sessions are not merely teaching exercises; they also serve as training in reaching and sustaining the zone.

Simulated trading exercises using historical data are particularly helpful as tools for deliberative practice. By advancing data bar by bar, constructing trading plans, placing trades, managing and exiting positions, traders can rehearse essential trading skills in a challenging fashion, receiving immediate feedback about their efforts.

3. ***Progressive Resistance*** – The development of one’s executive capacities—the hallmark of operating within the zone—is very similar to one’s physical development. Just as weightlifters must challenge themselves with sufficient resistance to build muscle strength, progressively increasing the resistance over time, traders can improve their focus by tackling increasingly complex trading challenges. For example, deliberative practice involving simulated trading of a single market position could be followed by rehearsal requiring the management of multiple positions. Simulations could also be initiated under conditions of



increasing distraction to require greater mental efforts. (See the September, 2002 SFO article, “Trading the Ranger Way” for a model of training drawn from the military that incorporates the notion of progressive challenge).

4. ***Frequent Breaks from Trading and Deliberative Practice*** – One of the interesting findings from research with expert performers is that they rehearse their skills in bursts. Episodes of high-quality concentration lasting no more than a few hours are followed by frequent breaks, often in the form of brief naps. A number of successful traders note that they stop trading when they are tired and stop trading at points in the day when volatility diminishes. This gives them time to recover their concentration and stay in the zone when they are trading. In a recent interview with Mark Etzkorn, for example, well-known trader Mark Cook reported that he finishes most of his trading by 2:00 ET. “At that point,” he explains, “I’ve already been thinking ‘market’ for seven hours, and that’s about my limit.” His self-study revealed that his performance diminishes when he trades beyond his fatigue threshold: when he is presumably out of the zone.
5. ***Biofeedback*** – Of all the strategies for developing trading expertise, this may



have the greatest potential. Biofeedback systems that measure skin conductance, heart rate, muscle tension, and brain waves are becoming increasingly affordable, allowing individuals to monitor their own levels of calm and arousal. While a calm biofeedback profile does not guarantee that one is in the zone, an aroused profile almost certainly ensures that the wrong brain regions are being activated for optimal performance. By combining biofeedback with deliberative practice, traders can track when their emotional patterns are taking them out of the flow state and threatening to disrupt their trading. In my own research, I have been working with forehead skin temperature biofeedback, which is highly sensitive to enhanced blood flow to the brain's frontal cortex. By tracking rises and declines in forehead temperature during practice sessions, traders can objectively measure the degree to which they are in the zone and discover strategies that maintain the state.

6. ***Cognitive Exercises*** – Elkonon Goldberg raises the intriguing notion of creating gymnasiums for the mind, in which cognitive exercises raise the level of frontal lobe functioning. Such exercises are already utilized with success among patients



www.fxtradingmethods.net

who have experienced brain injury or dysfunction. Goldberg believes that normal individuals can similarly enhance their brain functioning by exercising their frontal lobes with tasks that require sustained concentration across progressively challenging tasks. For example, in my own research, I measure forehead skin temperature while performing mental sums on the stock prices moving by on the ticker tape. Because the tape moves relatively quickly, the task requires intense concentration. Interestingly, forehead skin temperature tends to stay highly elevated throughout the task (suggesting frontal lobe activation), resulting in a state of quiet focus akin to the zone. Through these and other exercises, such as those found in Zen, it may be possible to create flow experiences on demand, placing traders more consistently in a high performance zone.

Conclusion

Robert Pirsig, in his *Zen and the Art of Motorcycle Maintenance*, offers the interesting observation that the real motorcycle the rider works on is the cycle called the self. Whether it is cycling, Zen archery, or trading, working on one's craft and working



www.fxtradingmethods.net

on oneself are one and the same. Through disciplined and intensive training, we literally shape the brain and create the motivational states necessary to sustain exemplary performance. This article suggests that traders can greatly accelerate this process. “What I do every day is a mental exercise that increases my mental dexterity...” trader Mark Cook observes. “I always say, ‘I am not a trader, I am trading’. Trading has engulfed my being.” The real market we are trading, he has found, is the market called the self.

*Brett N. Steenbarger, Ph.D. is Associate Professor of Psychiatry and Behavioral Sciences at SUNY Upstate Medical University and a daily trader of the stock index markets. He is the author of *The Psychology of Trading* (Wiley, 2003) and coeditor of the forthcoming *Art and Science of the Brief Psychotherapies* (American Psychiatric Press, Inc., 2004). Many of Dr. Steenbarger’s articles and daily trading strategies are archived at his website, www.brettsteenbarger.com.*



www.fxtradingmethods.net

Bibliography

- Csikszentmihalyi, M. (1996). *Creativity: Flow and the psychology of discovery and invention*. New York: HarperCollins.
- Douglas, M. (2001). *Trading in the zone: Master the market with confidence, discipline, and a winning attitude*. New York: Prentice Hall.
- Ericsson, K. A. (1996). *The road to excellence: The acquisition of expert performance in the arts and sciences, sports and games*. Mahwah NJ: Erlbaum.
- Etzkorn, M. (2001). Mark D. Cook: The deep roots of trading. *Active Trader Magazine*, 2(7), 66-74.
- Galton, F. (1869). *Hereditary genius*. New York: Macmillan.
- Goldberg, E. (2001). *The executive brain: Frontal lobes and the civilized mind*. New York: Oxford University Press.
- Herrigel, E. (1999). *Zen in the art of archery*. New York: Random House.
- Kiev, A. (2001). *Trading in the zone*. New York: Wiley.
- LeDoux, J. (1996). *The emotional brain: The mysterious underpinnings of emotional life*. New York: Touchstone.



www.fxtradingmethods.net

Pirsig, R. M. (1984). *Zen and the art of motorcycle maintenance: An inquiry into values*.

New York: Bantam.

Shimamura, A. P. (in press). The role of the prefrontal cortex in dynamic filtering.

Psychobiology.

Simonton, D. K. (1994). *Greatness: Who makes history and why*. New York: Guilford.

Steenbarger, B. N., Raschke, L. B., & Barber, B. E. (2002). Trading the Ranger way:

Training the elite trader. *Stock Futures and Options Magazine*, 1(6), 26-31.



www.fxtradingmethods.net

Figure One

Characteristics of Work Experiences Associated With “The Zone”

1. There are clear goals every step of the way;
2. There is immediate feedback to one’s actions;
3. There is a balance between challenge and skills;
4. Action and awareness are merged;
5. Distractions are excluded from consciousness;
6. There is no worry of failure;
7. Self-consciousness disappears;
8. The sense of time becomes distorted;
9. The activity becomes autotelic (pleasurable in its own right).

Adapted from Csikszentmihalyi, 1996



Figure Two

Characteristics of Successful and Unsuccessful Traders

<i>Successful Trader</i>	<i>Unsuccessful Trader</i>
Trades with a plan	Trades impulsively
Trades in a rule-governed fashion	Trades on hunches and urges
Trades when in a clear mental state	Trades emotionally
Trades when focused on the markets	Trades when focused on the self
Becomes problem-focused after a loss	Becomes emotion-focused after a loss
Trades with tested strategies for trade management	Trades with little or no risk management
Trades selectively, based on risk/reward	Trades inconsistently; overtrades and undertrades

www.brettsteenbarger.com



www.fxtradingmethods.net