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Focus THE SUMMARY

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Chapter 1: The Subtle Faculty

There are three different types of focus: inner, other, and outer focus. A well-lived life demands we be nimble in each. The good news on attention comes from neuroscience labs and school classrooms, where the findings point to ways we can strengthen this vital muscle of the mind. Attention works much like a muscle. Use it poorly and it can wither; work it well and it grows. Smart practice can further develop and refine this muscle of our attention, and even rehab focus-starved brains.

For leaders to get results they need all three kinds of focus. Inner focus attunes us to our intuitions, guiding values, and better decisions. Other focus smoothes our connections to the people in our lives. Outer focus lets us navigate in the larger world. A leader tuned out of his internal world will be rudderless; one blind to the world of others will be clueless; and those indifferent to the larger systems within which they operate will be blindsided.

It's not just leaders who benefit from a balance in this triple focus. All of us live in daunting environments rife with the tensions, competing goals and lures of modern life. Each of the three varieties of attention can help us find a balance where we can be both happy and productive.

LEADERS BOOK SUMMARIES

Focus

PART ONE: THE ANATOMY OF ATTENTION

Chapter 2: Basics

The two main varieties of distractions are sensory and emotional. The sensory distracters are easy to explain. As you read these words you're tuning out of the blank margins surrounding this text. Notice for a moment the feeling of your tongue against your upper palate. This is just one of an endless wave of incoming stimuli your brain weeds out from the continuous wash of background sounds, shapes and colors, tastes, smells, sensations, and on and on.

More daunting is the second variety of lures which are emotionally loaded signals. While you might find it easy to concentrate on answering your email in the hubbub of your local coffee shop, if you should overhear someone mention your name it's almost impossible to tune out the voice that carries it. Your attention reflexively alerts to hear what's being said about you. Forget that email.

The biggest challenge for even the most focused people, though, comes from the emotional turmoil of our lives. A recent blowup in a close relationship keeps intruding into your thoughts. Such thoughts barge in to get people to think through what to do about what's upsetting them. The dividing line between fruitless rumination and productive reflection lies in whether or not we come up with some tentative solution or insight, and then can let those distressing thoughts go. If, on the other hand, we just keep obsessing over the same loop of worry, we are in a rut.

The ability to stay steady on one target and ignore everything else operates in the brain's prefrontal regions. Specialized circuitry in this area boosts the strength of incoming signals we want to concentrate on (that email) and dampens down those we choose to ignore (those people chattering away at the next table).

We learn best with focused attention. As we focus on what we are learning, the brain maps that information on what we already know, making new neural connections. When our mind wanders off, our brain activates a host of brain circuits that chatter about things that have nothing to do with what we're trying to learn. Lacking focus, we store no crisp memory of what we're learning.

As we read a book, a blog, or any narrative, our mind constructs a mental model that lets us make sense of what we are reading and connects it to the universe of such models we already hold. This expanding web of understanding lies at the heart of learning. The more we zone out while building that web, and the sooner the lapse after we begin reading, the more holes there are.

The bombardment of texts, videos, images, and miscellaneous messages we get online is the enemy of the more full understanding that comes from what Nicholas Carr calls "deep reading." Deep reading requires sustained concentration and immersion in a topic rather than hopscotching from one thing to another, nabbing disconnected factoids.

As education migrates onto web-based formats, the danger looms that the multimedia mass of distractions we call the Internet will hamper learning. Deep thinking demands sustaining a focused mind. The more distracted we are, the more shallow our reflections; likewise, the shorter our reflections, the more trivial they are likely to be.

LEADERS BOOK SUMMARIES

Focus

Chapter 3: Attention Top and Bottom

Our brain has two semi-independent, largely separate mental systems. One has massive computing power and operates constantly, purring away in quiet to solve our problems, surprising us with a sudden solution to complex pondering. Since it operates beyond the horizon of conscious awareness we are blind to its workings. This system presents the fruit of its vast labors to us as though out of nowhere, and in a multitude of forms, from guiding the syntax of a sentence to constructing complex full-blown mathematical proofs.

This back-of-the-mind attention typically comes to the center of focus when the unexpected happens. You're talking on your cell phone while driving and suddenly a horn honk makes you realize the light has changed to green. "Bottom-up" has become the phrase of choice in cognitive science for such workings of this lower-brain neural machinery. By the same token, "top-down" refers to mental activity, mainly within the neo-cortex, that can monitor and impose its goals on the subcortical machinery. It's as though there are two minds at work.

Voluntary attention, willpower, and intentional choice are top-down. Reflexive attention, impulse, and rote habit are bottom-up (as is the attention captured by a stylish outfit or a nifty ad). When we choose to tune in to the beauty of a sunset, concentrate on what we're reading, or have a deep talk with someone, it's a top-down shift. Our mind's eye plays out a continual dance between stimulus-driven attention focus and voluntarily directed focus.

The bottom-up system multitasks, scanning a profusion of inputs in parallel, including features of our surroundings that have not yet come into full focus. It analyzes what's in our perceptual field before letting us know what it selects as relevant for us. Our top-down mind takes more time to deliberate on what it gets presented with, taking things one at a time and applying more thoughtful analysis.

Through what amounts to an optical illusion of the mind, we take what's within our awareness to equal the whole of the mind's operations. But in fact, the vast majority of mental operations occur in the mind's backstage, amid the purr of bottom-up systems. The bottom/top systems distribute mental tasks between them so we can make minimal effort and get optimal results. As familiarity makes a routine easier, it gets passed off from the top to the bottom. The way we experience this neural transfer is that we need pay less attention as it becomes automatic.

The bottom-up circuitry learns voraciously, and quietly, taking in lessons continually as we go through the day. Such implicit learning need never enter our awareness, though it acts as a rudder in life nonetheless, for better or for worse.

The automatic system works well most of the time as we know what's going on and what to do, and can meander through the demands of the day well enough while we think about other things. But this system has weaknesses, too. Our emotions and our motives create skews and biases in our attention that we typically don't notice, and don't notice that we don't notice.

Chapter 4: The Value of a Mind Adrift

Every variety of attention has its uses. The very fact that about half of our thoughts are daydreams suggests there may well be some advantages to a mind that can entertain the fanciful. We might revise our own thinking about a "wandering

LEADERS BOOK SUMMARIES

Focus

mind,” by considering that rather than wandering away from what counts, we may well be wandering toward something of value.

This gets us back to what the mind wanders toward. More often than not, it’s to our current personal concerns and unresolved business. While mind wandering may hurt our immediate focus on some task at hand, some portion of the time it does operate in the service of solving problems that matter for our lives.

In addition, a mind adrift lets our creative juices flow. While our minds wander we become better at anything that depends on a flash of insight, from coming up with imaginative wordplay to inventions and original thinking. In fact, people who are extremely adept at mental tasks that demand cognitive control and a roaring working memory, such as solving complex math problems, can struggle with creative insights if they have trouble switching off their fully concentrated focus. Still, once we’ve hit upon a great creative insight, we need to capture the prize by switching to a keen focus on how to apply it. Serendipity comes with openness to possibility, then homing in on putting it to use.

In a complex world, where almost everyone has access to the same information, new value arises from the original synthesis, from putting ideas together in novel ways, and from smart questions that open up untapped potential. Creative insights entail joining elements in a useful, fresh way. Our mind holds endless ideas, memories, and potential associations waiting to be made. The likelihood of the right idea connecting with the right memory within the right context diminishes drastically when we are either hyper-focused or too gripped by an overload of distractions to notice the insight.

Chapter 5: Finding Balance

That neural buzz adds tension to the demands of getting something done. Selecting one sharp focus requires inhibiting a multitude of others. Cognitive effort is required to sort out what’s important from what’s irrelevant. Tightly focused attention gets fatigued when we push to the point of cognitive exhaustion. The signs of mental fatigue, such as a drop in effectiveness and a rise in distractedness and irritability, signify that the mental effort needed to sustain focus has depleted the glucose that feeds neural energy. The antidote to attention fatigue is the same as for the physical kind: take a rest. But what rests a mental muscle?

Try switching from the effort of top-down control to more passive bottom-up activities by taking a relaxing break in a restful setting. The most restful surroundings are in nature, argues Stephen Kaplan at the University of Michigan, who proposes what he calls “attention restoration theory.” Such restoration occurs when we switch from effortful attention, where the mind needs to suppress distractions, to letting go and allowing our attention to be captured by whatever presents itself. Only certain kinds of bottom-up focus act to restore energy for focused attention. Surfing the Web, playing video games, or answering email does not.

We do well to unplug regularly as quiet time restores our focus and composure. Total, positive absorption shuts off the inner voice, that running dialogue with ourselves that goes on even during our quiet moments. That’s a main effect of virtually every contemplative practice that keeps your mind focused on a neutral target, like your breath or a mantra.

LEADERS BOOK SUMMARIES

Focus

PART TWO: SELF-AWARENESS

Chapter 6: The Inner Rudder

What allows people to have such a strong inner compass, a North Star that steers them through life according to the dictates of their deepest values and purposes? Self-awareness, particularly accuracy in decoding the internal cues of our body's murmurs, holds the key. Our subtle physiological reactions reflect the sum total of our experience relevant to the decision at hand.

Attention turned inward toward any part of the body amps up the insula's sensitivity to the particular area we're checking on. Tune in to your heartbeat and the insula activates more neurons in that circuitry. How well people can sense their heartbeat, in fact, has become a standard way to measure their self-awareness. The better people are at this, the bigger their insula.

The insula attunes us to more than our organs; our very sense of how we are feeling depends on it. People who are oblivious to their own emotions (and also to how other people feel) have sluggish insula activity compared with the high activation found in people highly attuned to their inner emotional life. At the tuned-out extreme are those with alexithymia, who just don't know what they feel, and can't imagine what someone else might be feeling.

Our "gut feelings" are messages from the insula and other bottom-up circuits that simplify life decisions for us by guiding our attention toward smarter options. The better we are at reading these messages, the better our intuition. There are two major streams of self-awareness: "me," which builds narratives about our past and future, and "I," which brings us into the immediate present. The "me" links together what we experience across time. The "I," in stark contrast, exists only in the raw experience of our immediate moment.

The "I," our most intimate sense of our self, reflects the piecemeal of our sensory impressions, particularly our body states. "I" builds from our brain's system for mapping the body via the insula. Such internal signals are our inner guide, helping us at many levels, from living life in keeping with our guiding values to remembering our running shoes.

Chapter 7: Seeing Ourselves as Others See Us

It takes meta-cognition, or awareness of our lack of awareness, to bring to light what the group has buried in a grave of indifference or suppression. Clarity begins with realizing what we do not notice, and realizing we don't notice that we don't notice.

Smart risks are based on wide and voracious data-gathering checked against a gut sense; dumb decisions are built from too narrow a base of inputs. Candid feedback from those you trust and respect creates a source of self-awareness, one that can help guard against skewed information inputs or questionable assumptions. Another antidote to group think is to expand your circle of connection beyond your comfort zone and inoculate against in-group isolation by building an ample circle of no-BS confidants who keep you honest. A smart diversification goes beyond gender and ethnic group balance to include a wide range of ages, clients, and any others who might offer a fresh perspective.

LEADERS BOOK SUMMARIES

Focus

Chapter 8: A Recipe for Self-Control

Executive attention holds the key to self-management. This power to direct our focus onto one thing and ignore others lets us bring to mind our waistline when we spot those quarts of cheesecake brownie ice cream in the freezer. This small choice point harbors the core of willpower, the essence of self-regulation.

At least three sub-varieties of attention, all aspects of the executive, are at play when we pit self-restraint against instant gratification. The first is the ability to voluntarily disengage our focus from an object of desire that powerfully grabs our attention. The second, resisting distraction, lets us keep our focus elsewhere rather than gravitating back to that juicy whatever. The third allows us to keep our focus on a goal in the future. All these add up to willpower.

The chronic cognitive overload that typifies life for so many of us seems to lower our threshold for self-control. The greater the demands on our attention, it seems, the poorer we get at resisting temptations. The epidemic of obesity in developed countries, research suggests, may be due in part to our greater susceptibility, while distracted, to go on automatic and reach for sugary, fatty foods. Brain imaging studies find that those who have been most successful at losing pounds and keeping them off exhibit the most cognitive control when facing a calorie-laden morsel.

In the mind's arena, willpower (a facet of "ego") represents a wrestling match between top and bottom systems. Willpower keeps us focused on our goals despite the tug of our impulses, passions, habits, and cravings. This cognitive control represents a "cool" mental system that makes an effort to pursue our goals in the face of our "hot" emotional reactions—quick, impulsive, and automatic.

The two systems signify a critical difference in focus. The reward circuits fixate on thoughts with a "hot" or high emotional charge, like what's tempting about the marshmallow is that it's yummy, sweet, and chewy. The greater the charge, the stronger the impulse, and the more likely it is that our more sober-minded prefrontal lobes will be hijacked by our desires. The prefrontal executive system, in contrast, cools the hot, by suppressing the impulse to grab, and reappraising the temptation itself with the thought that it's also fattening. You can activate this system by thinking about, for example, the shape of the marshmallow, or its color, or how it's made. This switch in focus lowers the energy charge to grab for it.

PART THREE: READING OTHERS

Chapter 9: The Woman Who Knew Too Much

A trained eye for the subtle cue offers advantage in many life arenas. According to Justine Cassell, director of the Human-Computer Interaction Institute at Carnegie Mellon University, "Gestures always occur just before the most emphasized part of what you're saying." Cassell also says, "One reason why some politicians may look insincere is that they have been taught to make particular gestures, but have not been taught the correct timing, and so when they produce those gestures after the word, they give us the sense that something fake is going on."

The timing of the gesture interprets its meaning. If your timing is off, a positive statement can have negative impact. Cassell gives this example: "If you say, 'She's a great candidate for the job' and raise your eyebrows, nod, and emphasize the word great all at the same time, you send a very positive emotional message. But if, as you say the same sentence,

LEADERS BOOK SUMMARIES

Focus

your head nod and eyebrow raise come in the short silence after great, then it shifts the emotional meaning to sarcasm and you're really saying she's not all that great."

Such readings of meta-messages in nonverbal channels occur to us instantly, unconsciously, and automatically. "We cannot not make meaning of what someone tells us," says Cassell, "whether in words or just gestures, or both together. Everything we attend to in another person generates meaning at an unconscious level, and our bottom-up circuitry constantly reads it."

These hidden messages have powerful impacts. Marital researchers have long known, for instance, that if one of the partners repeatedly makes fleeting facial expressions for disgust or contempt during conflicts, the odds are great against that couple staying together. In psychotherapy, if the therapist and client move in synch with one another, there are likely to be better therapeutic outcomes.

Chapter 10: The Empathy Triad

While cognitive or emotional empathy means we recognize what another person thinks and resonate with their feelings, it does not necessarily lead to sympathy. The third variety, empathic concern goes further, leading us to care about them, and mobilizing us to help if need be. This compassionate attitude builds on bottom-up primal systems for caring and attachment deep down in the brain. These mix with more reflective, top-down circuits that evaluate how much we value their well-being.

Empathy depends on a muscle of attention. To tune in to others' feelings requires we pick up facial, vocal, and other signals of their emotions. The anterior cingulate, a part of the attention network, tunes us to someone else's distress by tapping our own amygdala, which resonates with distress. In this sense, emotional empathy is "embodied" which means we actually feel in our physiology what's going on in the body of the other person.

Getting this bottom-up/top-down mix right has great implications. Those in whom the stirring of sympathetic feelings becomes too strong can suffer themselves. In the helping professions this can sometimes lead to emotional exhaustion and compassion fatigue. Those who protect themselves against sympathetic distress by deadening feeling can lose touch with empathy. The neural road to empathic concern takes top-down management of personal distress without numbing us to the pain of others.

The same network that activates when we see someone in pain also fires when we see anything aversive. *That's scary, I should get out of here* is the primal thought. Ordinarily, when people see someone else being pricked with a pin, their brain emits a signal indicating that their own pain centers are echoing that distress.

Physicians do not. Their brains are unique in blocking even such automatic responses to someone else's pain and discomfort, according to findings from a study led by Jean Decety, professor of psychology and psychiatry at the University of Chicago. "This attentional anesthetic seems to deploy the temporal-parietal junction (or TPJ) and regions of the prefrontal cortex, a circuit that boosts concentration by tuning out emotions. The TPJ protects focus by walling off emotions along with other distractions, and helps keep a distance between oneself and others.

LEADERS BOOK SUMMARIES

Focus

This same neuronal network kicks into action in any of us when we see a problem and look for a solution. So, if you're talking with someone who is upset, this system helps you understand the person's perspective intellectually by shifting from heart-to-heart emotional rapport to the head-to-heart connection of cognitive empathy.

The TPJ maneuver insulates the brain from experiencing the wash of emotion. It's the brain's basis for the stereotype of someone with cool rationality amid emotional turmoil. A shift into the TPJ mode creates a boundary so you're immune to emotional contagion, freeing your brain from being affected by the other person's emotions while you're focusing. Sometimes that's a crucial advantage allowing you to stay calm and concentrated when those around you are falling apart. Sometimes it's not as it also means you may tune out of emotional cues and lose the thread of empathy.

Chapter 11: Social Sensitivity

I've known several people with the same blindness to the cues a conversation was ending. That very tendency, in fact, is one of the diagnostic indicators of social dyslexia. Its opposite, social intuition, tells us how accurate we are at decoding the stream of nonverbal messages people constantly send, silent modifiers of what they are saying. This steady stream of nonverbal exchanges rushes to and from everyone we interact with, whether in a routine hello or a tense negotiation, transmitting messages received every bit as powerfully as whatever we might be saying. Perhaps more powerfully.

Those most alert to social situations have stronger activity and connectivity in these brain circuits than do those who just can't seem to get it right. The hippocampus is at work to make you act differently when with your family and when at work, and differently again in the office versus with your workmates in a bar.

Context awareness also helps at another level which includes mapping the social networks in a group or at a new school or on the job. This is a skill that lets us navigate those relationships well. People who excel at organizational influence, it turns out, can not only sense the flow of personal connections but also name the people whose opinions hold most sway. So, when they need to, they can focus on convincing those who will in turn persuade others.

Understandably, we focus on the people we value most. If you are poor, you depend on good relationships with friends and family whom you may need to turn to for help when you need someone to look after your four-year-old until you get home from work. Those with few resources and a fragile perch on stability "need to lean on people," says Dacher Keltner, a psychologist at the University of California, Berkeley. So, the poor are particularly attentive to other people and their needs.

The wealthy, on the other hand, can hire help by paying for a day care center or even an au pair. This means, Keltner argues, that rich people can afford to be less aware of the needs of other people, and can be less attentive to them and their suffering. Where we see ourselves on the social ladder seems to determine how much attention we pay. There is a need to be more vigilant when we feel subordinate, less so when superior. The corollary is that the more you care about someone, the more attention you pay, and the more attention you pay, the more you care. Attention interweaves with love.

LEADERS BOOK SUMMARIES

Focus

PART FOUR: THE BIGGER CONTEXT

Chapter 12: Patterns, Systems, and Messes

A “system” boils down to a cohesive set of lawful, regular patterns. Pattern recognition operates in circuitry within the parietal cortex, though the specific sites of a more extensive “systems brain” have yet to be identified. As it stands, there seems to be no dedicated network or circuitry in the brain that gives us a natural inclination toward systems understanding. Systems are virtually invisible to the naked eye, but their workings can be rendered visible by gathering data from enough points that the outlines of their dynamics come into focus. The more data, the clearer the map becomes. Enter the era of big data.

The information an organization gets from its computer systems can be far less useful than what comes in from other sources in the overall ecology of information, as processed by people. A search engine may give you massive data, but no context for understanding, let alone wisdom about that information. What makes data more useful is the person curating it. Ideally, the person who curates information will zero in on what matters, prune away the rest, establish a context for what the data means, and do all that in a way that shows why it is vital and so captures people’s attention. The best curators don’t just put the data in a meaningful context; they know what questions to ask.

Chapter 13: System Blindness

Systems are, at first glance, invisible to our brain as we have no direct perception of any of the multitude of systems that dictate the realities of our lives. We understand them indirectly, through mental models (the meanings of wave swells, constellations, and the flight of seabirds are each such models) and take action based on those models. The more grounded in data those models are, the more effective our interventions (for example, a rocket to an asteroid). The less grounded in data, the less effective they will be (much education policy).

“Systems blindness is the main thing we struggle with in our work,” says John Sterman, who holds the Jay W. Forrester chair at MIT’s Sloan School of Management. His classic textbook on system thinking applied to organizations and other complex entities makes the fundamental point that what we think of as “side effects” are misnamed. In a system, there are no side effects, just effects, anticipated or not. What we see as “side effects” simply reflect our flawed understanding of the system. In a complex system, he observes, cause and effect may be more distant in time and space than we realize.

“Much of the time,” Sterman notes, “people attribute what happens to them to events close in time and space, when in reality it’s the result of the dynamics of the larger system within which they are embedded.” The problem gets compounded by what’s called the “illusion of explanatory depth,” where we feel confidence in our understanding of a complex system, but in reality, have just superficial knowledge. Try to explain in depth how an electric grid operates or why increasing atmospheric carbon dioxide ups the energy in storms, and the illusory nature of our systems understanding becomes clearer.

The amygdala’s circuitry, concentrated in the middle of the brain, operates automatically bottom-up. We rely on the alert for dangers that tells us what we need to pay urgent attention to. But our automatic circuitry, usually so reliable in guiding our attention, have no perceptual apparatus or emotional loading for systems and their dangers. They draw a blank.

LEADERS BOOK SUMMARIES

Focus

“It’s easier to override an automatic, bottom-top-down reasoning than it is to deal with the complete absence of a signal,” Columbia University psychologist Elke Weber observes. We don’t notice what’s not there as neither mental system alerts us to this. It’s the same with our health or our retirement savings. When we eat some very rich dessert, we don’t get a signal telling us, ‘If you keep this up, you’ll die three years earlier.’ When we buy that spunky second car, nothing tells us, ‘You will regret this when you are old and destitute.’”

Chapter 14: Distant Threats

Life cycle analyses can give you a tsunami of information, over-whelming even the most ardent ecologists in the business world. An information system designed to cache all that life cycle information would spew out a bewildering cloud of millions or billions of data points. Still, digging into that data can pinpoint, for instance, exactly where in the history of that object changes can most readily reduce its ecological footprint.

The need to focus on a less complicated order (whether in organizing our closets, developing a business strategy, or analyzing LCA data) reflects a fundamental truth. We live within extremely complex systems, but engage them lacking the cognitive capacity to understand or manage them completely. Our brain has solved this problem by finding means to sort through what’s complicated via simple decision rules. For instance, navigating our lives within the intricate social world of all the people we know gets simpler if we use trust as an organizing rule of thumb.

To simplify that LCA tsunami, promising software zeroes in on the four biggest impacts four levels down in a product’s supply chain. This offers up the roughly 20 percent of the causes that account for about 80 percent of effects—the ratio known as the Pareto principle, that a small amount of variables account for the largest portion of effect. Such heuristics determine whether a flood of data offers up a “Eureka!” or we suffer from information overload. That decision emanates from a thin strip in the brain’s prefrontal area, the dorsolateral circuits. The arbiter of this cognitive tipping point resides in the same neurons that keep the turbulent impulses of the amygdala damped down. When we hit cognitive overwhelm, the dorsolateral gives up, and our decisions and choices get worse and worse and our anxiety rises. We’ve reached the pivot where more data leads to poor choices.

It’s better to zero in on the manageable number of meaningful patterns within a data torrent and ignore the rest. Our cortical pattern detector seems designed to simplify complexity into manageable decision rules. One cognitive capacity that continues to increase as the years go on is “crystallized intelligence” which means recognizing what matters, the signal within the noise. Some call it wisdom.

PART FIVE: SMART PRACTICE

Chapter 15: The Myth of 10,000 Hours

Anders Ericsson, the Florida State University psychologist whose research on expertise spawned the 10,000-hour rule of thumb, told me, “You don’t get benefits from mechanical repetition, but by adjusting your execution over and over to get closer to your goal.” He adds, “You have to tweak the system by pushing, allowing for more errors at first as you increase your limits.”

LEADERS BOOK SUMMARIES

Focus

Hours and hours of practice are necessary for great performance, but not sufficient. How experts in any domain pay attention while practicing makes a crucial difference. For instance, in his much-cited study of violinists—the one that showed the top tier had practiced more than 10,000 hours—Ericsson found the experts did so with full concentration on improving a particular aspect of their performance that a master teacher identified.

Smart practice always includes a feedback loop that lets you recognize errors and correct them, which is why dancers use mirrors. Ideally that feedback comes from someone with an expert eye which is why every world-class sports champion has a coach. If you practice without such feedback, you don't get to the top ranks. The feedback matters as much as the concentration.

Daydreaming defeats practice. Those of us who browse TV while working out will never reach the top ranks. Paying full attention seems to boost the mind's processing speed, strengthen synaptic connections, and expand or create neural networks for what we are practicing, at least at first. As you master how to execute the new routine, repeated practice transfers control of that skill from the top-down system for intentional focus to bottom-up circuits that eventually make its execution effortless. At that point, you don't need to think about it because you can do the routine well enough on automatic.

This is where amateurs and experts part ways. Amateurs are content at some point to let their efforts become bottom-up operations. After about fifty hours of training, whether in skiing or driving, people get to that "good-enough" performance level, where they can go through the motions more or less effortlessly. They no longer feel the need for concentrated practice, but are content to coast on what they've learned. No matter how much more they practice in this bottom-up mode, their improvement will be negligible.

The experts, in contrast, keep paying attention top-down, intentionally counteracting the brain's urge to automatize routines. They concentrate actively on those moves they have yet to perfect, on correcting what's not working in their game, and on refining their mental models of how to play the game, or focusing on the particulars of feedback from a seasoned coach. Those at the top never stop learning. If at any point they start coasting and stop such smart practice, too much of their game becomes bottom-up and their skills plateau.

"The expert performer," says Ericsson, "actively counteracts such tendencies toward automaticity by deliberately constructing and seeking out training in which the set goal exceeds their current level of performance." Moreover, "The more time expert performers are able to invest in deliberate practice with full concentration, the further developed and refined their performance."

Focused attention, like a strained muscle, gets fatigued. Ericson finds world-class competitors, whether weight lifters, pianists, or a dog sled team, tend to limit arduous practice to about four hours a day. Rest and restoring physical and mental energy get built into their training regimen. They seek to push themselves and their bodies to the max, but not so much that their focus gets diminished in the practice session. Optimal practice maintains optimal concentration.

LEADERS BOOK SUMMARIES

Focus

Chapter 16: Brains on Games

In face-to-face interactions, our social circuitry picks up a multitude of cues and signals that help us connect well, and wire together the neurons involved. But during thousands of hours spent online, the wiring of the social brain gets virtually no exercise. Although video games may strengthen attention skills like rapidly filtering out visual distractions, they do little to amp up a more crucial skill for learning. Sustaining focus on a gradually evolving body of information, such as paying attention in class and understanding what you're reading and how it ties in to what you learned last week or year is needed for learning.

There's a negative correlation between the hours a kid spends gaming and how well he does in school, very likely in direct ratio to time stolen from studies. When 3,034 Singaporean children and adolescents were followed for two years, those who became extreme gamers showed increases in anxiety, depression, social phobia, and a drop in grades. If they stopped their gaming habit, all those problems decreased.

On the upside, the demand that a player keeps focused despite snazzy distracting lures enhances executive function, whether for sheer concentration now or resisting impulse later. If you add to the game's mix a need to cooperate and coordinate with other players, you've got a rehearsal of some valuable social skills. Kids who play games that require cooperation show more helpfulness in the course of the day. Perhaps those purely violent, me-against-all games could be redesigned so that a winning strategy demanded coming to the aid of those in trouble and finding helpers and allies, not just a hostile scan.

Chapter 17: Breathing Buddies

According to Richard Davidson, "Mindfulness boosts the classic attention network in the brain's frontal-parietal system that works together to allocate attention. The circuits that are fundamental in the basic movement of attention include disengaging your focus from one thing, moving it to another, and staying with that new object of attention."

Another key improvement is in selective attention, which means inhibiting the pull of distracters. This lets us focus on what's important rather than be distracted by what's going on around us. You can keep your focus on the meaning of these words instead of having it pulled away by, say, checking an end note. This is the essence of cognitive control.

One of the bigger benefits for students is in understanding. Wandering minds punch holes in comprehension. The antidote for mind wandering is meta-awareness, attention to attention itself, as in the ability to notice that you are not noticing what you should, and correcting your focus. Mindfulness makes this crucial attention muscle stronger.

Then there are the well-established relaxation effects, such as the calm emanating from breathing exercises. This physiological impact suggests a downshift in the set point for arousal in the vagus nerve circuitry, the key to staying calm under stress and recovering quickly from upsets. The vagus nerve manages a host of physiological functions, most notably heart rate, and so the quickness of recovery from stress. Higher vagal tone, which can result from mindfulness and other meditations, leads to greater flexibility in many ways. People are better able to manage both their attention and their emotions. In the social realm, they can more easily create positive relationships and have effective interactions.

LEADERS BOOK SUMMARIES

Focus

Beyond such benefits, mindfulness meditators show symptom lessening in a remarkable range of physiological disorders, from sheer jitters to hypertension and chronic pain. “Some of the biggest effects found with mindfulness are biological,” says Davidson, adding, “It’s surprising for an exercise that trains attention.”

PART SIX: THE WELL-FOCUSED LEADER

Chapter 18: How Leaders Direct Attention

An organization that focuses inwardly may execute superbly. If it has not attuned to the larger world in which it operates, that execution may end up in the service of a failed strategy. Any business school course on strategy will tell you about two approaches: exploitation and exploration. Some people, and some businesses, succeed through a strategy of exploitation, where they refine and learn how to improve an existing capacity, technology, or business model. Others find their road to success through exploration by experimenting with innovative alternatives to what they do now.

Companies with a winning strategy tend to refine their current operations and offerings, not explore radical shifts in what they offer. A mental balancing act, exploring the new while exploiting what’s working, does not come naturally. Those companies that can both exploit and explore are “ambidextrous” in that they separate each strategy into units, with very different ways of operating and cultures. At the same time, they have a tight-knit team of senior leaders who keep an eye on the balance of inner, outer, and other focus.

What works at the organizational level parallels the individual mind. The mind’s executive, the arbiter of where our focus goes manages both the concentration that exploitation requires and tilt open focus that exploration demands. Exploration means we disengage from a current focus to search for new possibilities, and allows flexibility, discovery, and innovation. Exploitation takes sustained focus on what you’re already doing, so you can refine efficiencies and improve performance. Those who exploit can find a safer path to profits, while those who explore can potentially find a far greater success in the next new thing even though the risks of failure are greater, and the horizon of payback is further away. Exploitation is the tortoise, exploration is the hare. The best decision-makers are ambidextrous in their balance of the two, knowing when to switch from one to the other. They can lead switch-hitting organizations, which are, for instance, good at seeking growth by simultaneously innovating and containing costs, two very different operations.

Danger here abounds during a business downturn, when companies understandably focus on surviving and meeting their numbers by cutting costs, often at the expense of caring for their people or keeping up with how the world has changed. Being in survival mode narrows our focus, but prospering is no guarantee of ambidexterity, either. That switch can be hardest for those caught in what Intel’s Andrew Grove calls the “success trap.” He observes that every company will face a point when it will have to change dramatically to survive, let alone raise its performance. “Miss the moment,” he warns, “and you start to decline.”

Chapter 19: The Leaders Triple Focus

The sweet spot for smart decisions comes not just from being a domain expert, but also from having high self-awareness. If you know yourself as well as your business, then you can be shrewder in interpreting the facts while, hopefully, safeguarding against the inner distortions that can blur your lens. Otherwise we’re left with cold rationality as embodied

LEADERS BOOK SUMMARIES

Focus

in decision trees, where we weigh and compute the pros and cons of all relevant factors. One problem is that life rarely arranges itself so neatly. Another is that our bottom-up mind harbors crucial information that our top-down brain can't access directly, let alone put into that decision tree. What looks good on paper may not be so great in actuality.

"The most successful leaders are constantly seeking out new information," says Ruth Malloy, global director of Hay Group's leadership and talent practice. "They want to understand the territory they operate in. They need to be alert to new trends, and to spot emerging patterns that might matter to them?" Leaders who inspire can articulate shared values that resonate with and motivate the group. These are the leaders people love to work with, who surface the vision that moves everyone. But to speak from the heart to the heart, a leader must first know her values. That takes self-awareness.

Inspiring leadership demands attuning both to an inner emotional reality and to that of those we seek to inspire. These are elements of emotional intelligence, which I've had to rethink a bit in light of our new understanding of focus. Attention gets talked about only indirectly in the emotional intelligence world: as "self-awareness," which is the basis of self-management; and as "empathy," the foundation for relationship effectiveness. Yet awareness of our self and of others, and its application in managing our inner world and our relationships, is the essence of emotional intelligence.

Those who have a high-achieving, super-focused style, are called "pacesetters," meaning they like to lead by example, setting a fast pace they assume others will imitate. Pacesetters tend to rely on a "command and coerce" leadership strategy where they simply give orders and expect obedience. Leaders who display just the pacesetting or command style, or both but not any others, create a toxic climate, one that dispirits those they lead. Such leaders may get short-term results through personal heroics, like going out and getting a deal themselves, but do so at the expense of building their organizations.

To anticipate how people will react, you have to read people's reactions to you. That takes self-awareness and empathy in a self-reinforcing cycle. You become more aware of how you're coming across to other people. With high self-awareness, you can more readily develop good self-management. If you manage yourself better, you will influence better. This triple focus demands attention juggling, and leaders who fail at that do so to their own and their organization's detriment.

Chapter 20: What Makes a Leader?

Take any working group and ask the members, "Who is the leader?" They'll be likely to name whoever has the fitting job title. Now ask them, "Who is the most influential person in your group?" The answer to that identifies the informal leader, and tells you how that group actually operates. These informal leaders are more self-aware than their teammates. They tend to have the smallest gap between their own ratings of their abilities and those by others. University of New Hampshire psychologist Vanessa Druskat says, "Informal leaders often emerge in a temporary way, and switch in and out."

If that informal leader has strengths in empathy in balance with other abilities, the research shows, the team's performance tends to be higher. "If the leader has low empathy," Druskat told me, "and a high level of achievement drive, the leader's goal-orientation drags down the team performance. But, importantly, if the leader has high levels of empathy and low levels of self-control, performance is also reduced. Too much empathy gets in the way of calling people on their misbehaving."

LEADERS BOOK SUMMARIES

Focus

Of course, companies need leaders who beam in on getting better results. But those results will be more robust in the long run when leaders don't simply tell people what to do or just do it themselves, but are motivated to help other people be successful, too. They realize, for instance, that if someone lacks a given strength today, they can work to develop it. Such leaders take the time to mentor and advise. In practical terms, all this means:

- Listening within, to articulate an authentic vision of overall direction that energizes others even as it sets clear expectations.
- Coaching, based on listening to what people want from their life, career, and current job. Paying attention to people's feelings and needs, and showing concern.
- Listening to advice and expertise; being collaborative and making decisions by consensus when appropriate.
- Celebrating wins, laughing, knowing that having a goodtime together is not a waste of time but a way to build emotional capital.

The wider a leader's repertoire of styles, the more energized the organization's climate and the better the results.

PART SEVEN: THE BIG PICTURE

Chapter 21: Leading for the Long Future

Peter Senge, who teaches at the MIT Sloan School of Management, developed the "learning organization," which brings systems understanding into companies. "Essential to understanding systems is your time horizon," Senge told me. "If it's too short, you'll ignore essential feedback loops and come up with short-term fixes that won't work in the long run. But if that horizon is long enough, you'll have a chance of seeing more of the key systems at play. The bigger your horizon, the bigger the system you can see."

A triple focus might help us become successful, but toward what end? We must ask ourselves: in the service of what, exactly, are we using whatever talents we may have? If our focus serves only our personal ends which are self-interest, immediate reward, and our own small group, then in the long run all of us are doomed. The largest lens for our focus encompasses global systems, considers the needs of everyone (including the powerless and poor) and peers far ahead in time. No matter what we are doing or what decision we are making we need to check our motivation which means asking, "Is it just for me, or for others? Is it for the benefit of the few, or the many? Is it for now or for the future?"