PART 1

How Mindfulness Training Rewires the Brain for Leadership Excellence

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The Shift that Changes Everything

In November of 1887, two scientists named Albert A. Michelson and Edward W. Morley published a paper at a prestigious university known today as Case Western Reserve, in Cleveland, Ohio.[1] The paper caused quite a conundrum for physicists of the day.

Michelson and Morley hadn't intended to turn the world of physics upside down. They were simply trying to prove that the *ether* existed.

For many years, scientists believed that there must be some invisible sea, which they called the ether, through which every physical thing in the universe is moving. It was a very convenient theory. It provided the foundation for the then accepted laws of motion and provided a medium for the propagation of light (at the time, light was viewed by most scientists as only a wave-like phenomenon; it needed something to "wave" through).

The ether was an extremely important element of physical theories in the late 1800s. Most scientists agreed that the ether simply had to exist.

There was one significant problem, though. No one had ever seen the ether, nor had anyone been able to measure it in any other way.

Michelson and Morley devised a rather simple experiment to determine whether the ether actually existed. They theorized that if there was an ether, and the earth was moving through it, there should be a sort of ether breeze, similar to what we feel when we put a hand outside of a car window while we're driving down the highway. For instance, the earth travels around the sun at nearly 67,000 miles per hour (mph), so that breeze alone would be fairly significant.

The ether breeze, they postulated, would create substantial resistance for a beam of light and cause the light to slow down. So Michelson and Morley set up an experiment to measure the speed of light traveling in the direction of the earth's motion, through the ether breeze, versus a beam of light not traveling against the ether breeze. The experiment showed quite conclusively that there was no difference in the speed of the two beams of light and therefore that the ether almost certainly did not exist.

Other scientists soon agreed with the findings, and similar experiments were conducted with similar results. Within a short time, there was quite a bit of consternation. It appeared that the beloved and necessary ether had been proved to be nothing but a figment of human imagination.

But the problems caused by the elimination of the ether as a possible component of the laws of motion and light propagation were quite minor compared with what else Michelson and Morley discovered in their experiment. As a side effect of their effort to disprove the ether, they also noticed that the speed of light was unchanged relative to the motion of the earth.

Soon, several other experiments produced similar results. It appeared that the relative motion of the observer did not affect the speed of light. This, of course, makes no sense. It defies the extremely well established and commonsense law of motion that states that velocity *is* relative to the motion of the observer.

For example, if you're in a parked car and a car going 20 mph passes by you, the relative velocity between the two cars is 20 mph. However,

if you're in a car going 10 mph and a car going 20 mph in the same direction passes you, the relative velocity between the two cars is 10 mph. The other car pulls away at a rate of 10 mph relative to your car.

But if the speed of light were constant, it would mean that for some reason light wouldn't obey that law. If you were in a parked car and turned your headlights on, light would move away from you at 186,000 miles per second. If you and your car could somehow travel at a velocity of 100,000 miles per second in the same direction as a light beam, that beam of light would still move away from you at 186,000 miles per second.

Again, this defies common sense. In the example above, why doesn't the light have a relative velocity of 86,000 miles per second? Why would light be different from every other single thing we experience through our senses in this world?

These are likely the same questions the physicists of the day asked. The answer the scientists likely settled on at first was that something must have gone wrong in the Michelson-Morley experiment. Everything the experts of the day knew about the world, and how we operate in it, forced them to conclude that there was no way the speed of light could possibly be constant.

But one young physicist, who had been fascinated by light for years, took a different approach to the problem in the early 1900s. Although he was likely at least vaguely aware of the experiments showing that the speed of light is constant, his approach actually began in a very childlike manner when he imagined what things would be like if he were traveling on a beam of light. The result of his thought experiment was that one could never catch up to a light beam because that would result in seeing a stationary electromagnetic wave, which is not believed to be possible. Therefore, he concluded that the speed of light must be constant.

This young physicist later realized that if the speed of light were constant, there would be some very strange consequences. For instance, as a person approaches the speed of light, her mass increases, she becomes compressed in the direction of motion, and she actually ages

more slowly relative to a person moving with less velocity. He realized that the speed of light doesn't change relative to time; time changes relative to the speed of light. All of these weird consequences were later proved through experiments to be true.

While everyone else was saying that the constancy of the speed of light is impossible because it totally defies common sense, our young physicist realized that both his thought experiments and other experiments suggested otherwise. He was open to the unlikely possibility that perhaps our world just might be so drastically different from how the conventional wisdom of the time suggested it was. He had to temporarily let go of much of what his training led him, and other physicists of the day, to believe. As Gary Zukav writes in the excellent book *The Dancing Wu Li Masters*, this pioneering physicist had to approach the issue of the constancy of the speed of light with the mind of a complete beginner.[2]

With this beginner's mind, the young physicist began to base all of his math on the idea that the constancy of the speed of light is not a theory; it is a fact. When he used *C* in his equations for the speed of light, he thought of it as being a constant. His most well-known equation is $E = mc^2$. The young physicist's name is Albert Einstein. Today, $E = mc^2$ is probably the most well-known equation in the world. His insights completely transformed our understanding of how the universe works and became the basis for some of the most useful physical theories in history, which later helped us build countless things we rely on every day.

Beginner's Mind

One of my favorite quotes is from a famous mindfulness teacher from Japan named Shunryu Suzuki. He said, "In the beginner's mind there are many possibilities, but in the expert's there are few."[3]

Albert Einstein offers us a perfect example of this. When he was asked why he was so successful as a scientist, his humble response was: "The ordinary adult never gives a thought to space-time problems. . . . I, on the contrary, developed so slowly that I did not begin to wonder about

space and time until I was an adult. I then delved more deeply into the problem than any other adult or child would have done."[4]

When most scientists are children, and are asking the big questions that could change the world, they don't have the math or physics training that would allow them to translate their inquiries into something the world could use. And, by the time they reach the peak of their training, they have also fully developed into adults and have lost much of their sense of childlike wonder.

But Einstein never lost his childlike personality traits. He continued to ask naïve, childlike questions well into his adult life. When he asked those questions, though, he already had the math and physics training that allowed him to test and prove his ideas, and share them in a way that other people could understand and apply.

Fortunately for us, we can train our minds to be like the mind of Einstein. We may not be able to match his IQ, but we can train to see the world with a beginner's mind. We can train to be *free* from the constraints of what we already know, without having to *discard* what we already know.

The benefits of having such a beginner's mind extend well beyond the worlds of science and innovation. A beginner's mind is the essence of mindfulness training. In fact, some schools of mindfulness actually refer to the practice as the practice of "beginner's mind."

The Attitude of a Beginner Is Essential

Beginner's mind is essentially a shift in attitude. Instead of operating from the position of *I've already experienced this* or *I already know about this*, we operate with an open, inquisitive attitude of *Ooh, let's explore what this experience is actually like*. We have a questioning attitude, such as, *What's happening now within me and around me?*

This attitude alone can be very beneficial in a general sense. As we've already discussed, having a beginner's mind opens up a whole realm of possibilities for learning new things, for creative approaches that can lead to breakthrough discoveries, and for seeing opportunities that no else sees.

However, we discover many more benefits when we train to apply this beginner's mind to our moment-to-moment experience, when we adopt and then sustain the attitude of *What's happening now, within me and around me?*

The moment we adopt that attitude, a shift occurs in our awareness. We shift from perceiving the world through the lens of the thinking mind—essentially being the thinking mind—to being self-aware, which includes awareness of the thinking mind. When we become aware of the thinking mind, we are free from it. We no longer see the world through its limited view.

Figure 1.1—a top-down view of a human head—illustrates how most of us spend most of our time perceiving the world and acting in it.

The outer ring of the mind represents the thinking mind as a whole.[5]

The middle ring represents the ego, which is a creation of the thinking mind and its interactions with the world up to this moment.

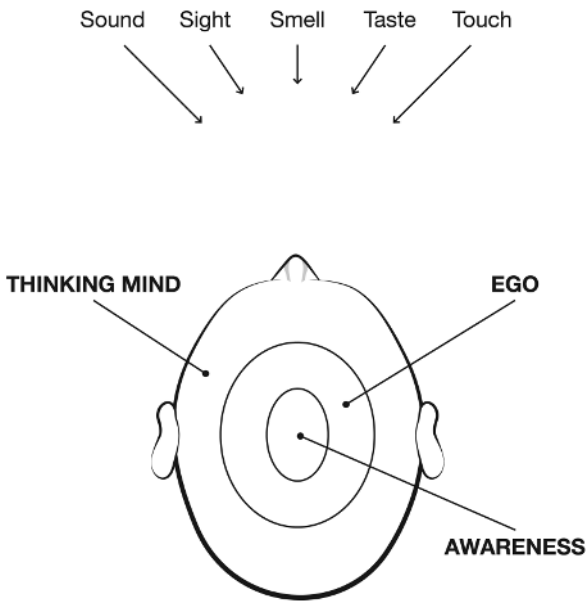

Figure 1.1 The Default Way of Experiencing the World

It is essentially a collection of conditioned habits, thought patterns, emotional patterns, and memories that make up our personal identity—a very strong sense of *me*.

The innermost part of the image represents awareness.

For most of us, most of the time, we operate as though we are the thinking mind and its ego, and we receive all sensory information through those filters, as represented by the arrows in the previous figure. Existing in this way is quite problematic. Following is an overview of three critical ways that our personal and professional success are hindered by operating from the perspective we see in Figure 1.1.

Not Seeing What's Actually Happening

When we operate from the perspective of the thinking mind and its ego—which some neuroscientists refer to as the default mode network (DMN), as Dr. Gard explains in Neuro Note 1.1—everything we perceive is filtered through the thinking mind and the ego. We don't see things as they actually are. We see them with quite a bit of distortion. All of our past experiences, our habitual ways of seeing, and our beliefs and opinions shape what we perceive, as we saw above with the scientists in the late 1800s, whose conditioning caused them to disregard the possibility of the constancy of the speed of light.

As leaders, one of the most critical skills we can possess is the ability to see clearly what is actually happening—to see things not in terms of how we want them to be, or how our conditioning tells us they must be, but how they *actually are*.

Although I'm a huge proponent of being as optimistic as possible about the future, it is absolutely essential that we be extremely realistic about where we, our team members, and our organizations actually are in the present moment. We cannot hope to have any chance of charting a path for future success if we start with an incorrect view of where we currently are. This is akin to trying to get to Paris, France, from Cape Town, South Africa, but thinking that we're actually starting from Rio de Janeiro, Brazil. It would be essentially impossible to get to Paris based on the wrong starting assumption.

Neuro Note 1.1: The Wandering Mind and the Default Mode Network

A large portion of the time (nearly 47 percent), we are not fully engaged in the world around us or in the task that we are conducting.[6] Instead we are lost in self-generated and self-related thoughts, such as remembering our past and planning our future; our mind is wandering.[7]

This mind wandering comes at a cost.[8] It is related to negative emotions and poor performance on demanding tasks, such the scholastic aptitude test (SAT).[9] It also has been hypothesized that this habit or default mode of mind wandering biases the view of ourselves and the world around us, and indeed a recent study suggests that mind wandering is related to decision-making bias.[10]

In the brain, mind wandering is associated with the so-called default mode network (DMN).[11] The DMN is active when we are not engaged in any task or processing of external events. It is involved in remembering the past, envisioning future events, and considering thoughts and perspectives of other people. Roughly speaking, the DMN comprises three midline regions of the brain: the ventromedial prefrontal cortex (vmPFC) that supports emotional processing, the dorsomedial prefrontal cortex (dmPFC) that is related to self-referential processing, and the posterior cingulate cortex (PCC) plus adjacent precuneus that are associated with recollection of prior experiences. Furthermore, the DMN comprises a region in the inferior parietal lobule (IPL), close to the temporoparietal junction (TPJ), which is related to perspective taking.[12]

Acting in Conditioned, Habitual Ways

Second, when we operate from the position of being the thinking mind and the ego it has created, we act based on our conditioned, habitual

ways of reacting. It's as though we are plugged into the proverbial matrix.[13] We are essentially programs that can react to a situation only in the way we've been programmed to react. These programs are constructed from a combination of our genetics and all of the ways the brain has been conditioned by our life experiences up to this moment.

Of course, most of us have programming that can be helpful. There are many cases when reacting based on that programming is likely to yield excellent results. One example is a highly trained doctor reacting—essentially on autopilot—to a medical emergency, allowing her programming to take over and provide the crucial help that could save a person's life.

However, we also have a tremendous amount of programming that does not serve us well. We have numerous conditioned, habitual ways of doing things. Although we might think that we are already free from our programming, as we'll explore in Chapter 2, there are many degrees of being subject to this programming, and much of the programming is completely unconscious for most of us.

In fact, people who think they are completely free from habitual, conditioned ways of thinking, deciding, and acting are often those who are the least free from their programming. They simply don't see their programming because their lack of self-awareness keeps the conditioning completely unconscious.

Often, our conditioned, habitual ways of doing things result in suboptimal outcomes in our personal and professional lives. For example, as we'll see in Chapter 2, this conditioning can affect business acumen and cause very intelligent, experienced leaders to unconsciously make decisions that have significant, negative impacts on gross margins and expenses.

This unconscious conditioning is often quite subtle, and it requires a very high level of self-awareness to recognize the programming and be free from it. Unfortunately, because our minds are untrained, we often lack the momentary self-awareness to notice even very obvious forms of conditioning.

For instance, on several occasions while entering the Jetway at the airport, I've overheard the person in front of me talking with the gate

agent. The gate agent said, "Have a nice flight!" The person in front of me replied, "You, too!"

The gate agent smiled politely in each case but was quite likely thinking, "I'm not taking a flight." The reply of the person in front of me was a conditioned, habitual-type response. Each time I've seen this happen, it appeared to me as though the person wasn't even aware that what he just said was nonsensical.

Another example is something I would imagine you've experienced many, many times. You're walking down the street and you're approaching another person walking briskly in the opposite direction. You say, "Hello" to the person. The person replies with "How ya doin'?" as he continues walking by you without even the slightest intention of slowing down to hear the answer to his question.

This is clearly an unintentional, habitual way of responding. The person doesn't actually want to know how you're doing. It's just another way of saying hello. Again, in most cases, I would imagine that most people are unaware of the fact that they are communicating completely out of habit.

If we're unaware of things as obvious as the words that are coming out of our own mouths, imagine how much of our more subtle conditioning we're unaware of. For instance, how do we react when a team member brings us bad news? What types of signals do we send to people in different departments of our organizations as a result of our biases toward sales, quality, or finance? Are we even aware that we have biases toward different areas of our organizations?

Neuro Note 1.2: The Formation of Habits

As we have seen in the main text, our lives are full of habits. In the scientific literature, habits have been described as having the following defining characteristics: "First, habits (mannerisms, customs, rituals) are largely learned; in current terminology, they are acquired via experience-dependent plasticity. Second, habitual behaviors occur repeatedly over the course of days or years,

and they can become remarkably fixed. Third, fully acquired habits are performed almost automatically, virtually unconsciously, allowing attention to be focused elsewhere. Fourth, habits tend to involve an ordered, structured action sequence that is prone to being elicited by a particular context or stimulus. And finally, habits can comprise cognitive expressions of routine (habits of thought) as well as motor expressions of routine."[14]

In the brain, habit learning is associated with the basal ganglia and basal-ganglia-thalamocortical loops. The basal ganglia are a group of structures located deep inside the brain (subcortical structures). They are composed of the dorsal striatum (caudate and putamen), ventral striatum, globus pallidus, and sometimes other regions as well. The striatum receives input from a wide range of brain regions all over the cortex and sends its output to the globus pallidus which then via the thalamus sends it back to the cortical regions, thus forming basal ganglia thalamocortical loops. This input from such a variety of regions and output to such a variety of regions enables the learning of a large variety of complex habits, involving motor behavior as well as thoughts.

The actual learning in the basal ganglia takes place under the influence of the neurotransmitter dopamine, which is released in response to reward such as food, sexual activity, money, and praise, but also to more abstract forms of reward. Early in the learning process, behavior is goal directed and flexible and associated with activation in the caudate together with the ventromedial prefrontal cortex, while it later becomes habitual and brain activation shifts from the caudate to the putamen.[15]

Selfishness and Negative Emotions

Third, when we operate from the egoic perspective, we operate from and easily get stuck in a place that is the source of all of our negative thought patterns and negative emotions. The ego sees the world from the point of view of self versus others. It has one primary function: self-

preservation. Thus, when we operate from ego, we perceive the world and act through varying degrees of anxiety, fear, and selfishness.

In addition to making life a much less enjoyable experience than it can be, operating from the egoic perspective severely undermines our chances for sustained professional success. The negative emotions and mind states the egoic perspective creates result in reduced creativity, burnout, and a tendency to drive negative emotions in our teams instead of positive ones. As we'll explore later in this book, research has verified the intuitive idea that teams with negative emotional climates significantly underperform compared with teams with more positive emotional climates.

The Shift That Changes Everything

Fortunately, with the shift that results when we are being mindful with the curious attitude of a beginner, we can operate from a completely different perspective, as shown in Figure 1.2.

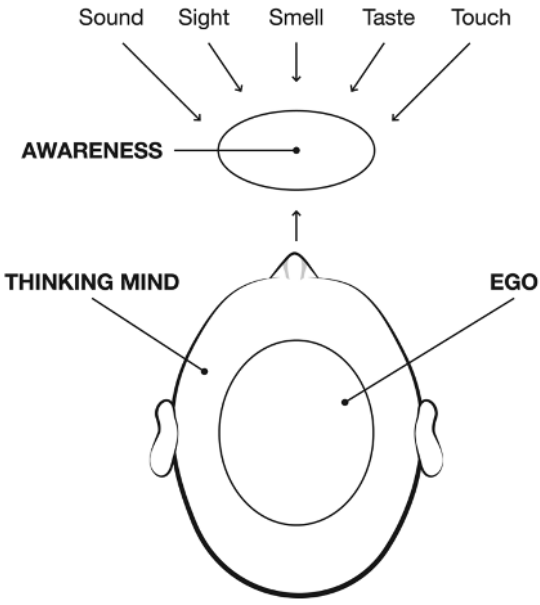

Figure 1.2 The Mindful Way of Experiencing the World

Simply by having the attitude of a beginner and asking in our minds the question "What's happening now within me and around me?" the shift that we see in Figure 1.2 occurs. This image is not meant to imply that we have some sort of out-of-body experience. In fact, when practicing mindfulness correctly, you will likely feel as though you are more in your body than you typically are. This image is meant to demonstrate visually the ability to experience sensations directly, without being filtered through the thinking mind and ego, and to see objectively the body, thinking mind, and ego.

This ability to see ourselves objectively is called *mindful self-awareness*.[16] When we have a beginner's mind and become mindful, we have a balanced, nonjudgmental awareness of both our outer and our inner worlds. The thinking mind and the ego become objects of our awareness. This doesn't mean that we have to shut thinking off. It means we are no longer caught in thinking or distracted by it. Thus, we are no longer controlled by the thinking mind and ego. Rather, the thinking mind is seen as a tool we can use to help us skillfully manage what we experience.

This shift to mindful self-awareness is the shift that changes everything. Self-awareness is the most important leadership skill we can develop. It affects every other aspect of leadership, most notably business acumen and emotional and social intelligence.

Let's start with an explanation of how mindful self-awareness remedies the three problems we discussed above, which result when we operate from the perspective of being the thinking mind and its ego. When we instead operate from the perspective of mindful self-awareness that we see in Figure 1.2, we realize the following benefits.

Seeing Things as They Actually Are

When we operate from the perspective of mindful self-awareness, we're no longer experiencing the world through the filter of the thinking mind and the ego. We operate from what neuroscience has identified as an entirely different neural network, one that allows us to perceive the world with great clarity, exactly as it is. This allows us to make decisions based on what's actually happening versus some distorted version of

what's happening or what we hope is happening or not happening. The journey to Paris, we discussed above is much easier when we know that we're actually starting in Cape Town, instead of Rio de Janeiro.

Neuro Note 1.3: Mindfulness and Shifting from the Default Mode Network to Present Moment Awareness

As we saw earlier, mind wandering is associated with brain activation in the DMN and with biased decision making.[17] In a recent study conducted by University of California, Santa Barbara, scientist Michael Mrazek and his colleagues, it was shown that training mindfulness for two weeks resulted in reduced mind wandering.[18] Even more recently, in 2014, European Institute for Business Administration (INSEAD) scientist Andrew Hafenbrack and colleagues showed that just 15 minutes of practicing mindfulness reduced the so-called sunk-cost bias.[19] The sunk-cost bias refers to the "tendency to continue an endeavor once an investment in money, effort, or time has been made" even if it is not wise to do so.[20]

As one would expect, based on the relationship between mindfulness and mind wandering, and mind wandering and DMN activity, Yale neuroscientist Judson Brewer and colleagues found that during mindfulness practice, practitioners had decreased brain activation in two key regions of the DMN, the PCC and mPFC, as compared with nonpractitioners. Furthermore, the researchers reported greater functional connectivity between the PCC and the dorsal anterior cingulate cortex (dACC), and the dorsolateral prefrontal cortex (dlPFC) during intentional mindfulness practice and rest. These regions are involved in self-monitoring and cognitive control, respectively, and the researchers interpreted the greater connectivity in

mindfulness practitioners as greater monitoring and dampening of DMN activity to reduce mind wandering and interference with tasks.[21] Several other studies have reported mindfulness-related changes in DMN functional connectivity as well.[22]

Mindfulness is related not only to decreased mind wandering but also to a shift to increased present moment awareness, in particular awareness of body sensations.[23] For example, in one study the subjectively reported sensitivity of body regions corresponded better to objectively determined body sensitivity in experienced mindfulness practitioners than in nonmindfulness practitioners.[24] Congruent with these findings, several studies have shown increased mindfulness-related brain activity and gray matter in the insula,[25] a brain region that is involved in (body) awareness.[26]

An early study that illustrates the shift from a mind-wandering-like state of being to a more direct-experience way of being is that of University of Toronto neuroscientist Norman Farb and colleagues. The team investigated the brain activity of completers of an eight-week mindfulness training (mindfulness-based stress reduction) and controls during two forms of self-reference: an experiential focus in which participants were asked just to observe thoughts, feelings, and body states as they occur and a narrative focus in which they were asked to judge whatever is experienced, to relate it to oneself, and to get caught up in thoughts.

Completers of the mindfulness training in comparison with nonmindfulness practitioners had decreased brain activation in the midline brain structures mentioned in this Neuro Note and increased activation in lateral brain areas, including the insula and secondary somatosensory cortex, during experiential self-focus as compared with narrative self-focus. Furthermore, a decoupling of the right insula and mPFC was found. The authors interpret this as a clear shift to experiential, sensory grounded self-awareness instead of the habitual integration of narrative and experiential self-reference.[27]

Freedom from Conditioning

Second, when we're ready to take action in response to what we perceive, we experience a small miracle: We can actually choose how we want to respond.

In one situation, it may be true that following our programming is perfectly appropriate (like the doctor above). In another, we may realize that following our programming would not yield the optimal result. The miracle is that when we have the perspective of mindful self-awareness that we see in Figure 1.2, we can see the programming within us that remains completely unconscious for most people. Moreover, we have the space to choose which programming we want to follow.

As neurologist Viktor Frankl famously said, "Between stimulus and response there is a space. In that space lies our freedom and power to choose our response. In our response lies our growth and freedom."[28] A similar phrase was later made popular in the business world by Dr. Stephen R. Covey, who said, "Between the stimulus and the response is your greatest power—you have the freedom to choose your response."[29] As we will see in Chapter 2, we can develop this "greatest power" with a proven practice for systematically training the mind.

Emotional Intelligence

Third, self-awareness is the foundation of *emotional intelligence*, which is what allows us to be free from disruptive emotional states, such as anxiety, anger, and lack of motivation, and to spend more time operating from beneficial emotional states, such as inspiration, happiness, and high motivation.

Emotional intelligence also allows us to help the people around us be free from disruptive emotional states and spend more time operating from the beneficial states. The more emotionally intelligent a leader is, the more successful he or she will be at creating a positive emotional climate for his or her team. This is an extremely important leadership skill that some researchers suggest accounts for up to 90 percent of the differences between stellar leaders and average ones.[30]

As we'll explore in Chapter 3, assuming all other things are equal, a team that is emotionally healthy is going to consistently outperform a team where disruptive emotional states are the norm.

Changing Our Default

Almost everyone is mindfully self-aware quite frequently but unintentionally and for very brief instances. This is a lot like the relationship most people have to running. Most people do run from time to time. However, for people who don't intentionally train for running, the only time they run is when life necessitates it, like when they're trying to catch a subway train or rushing to cross the street before the light changes.

When running is so infrequent like this, and for such short bursts, there are little or no benefits other than arriving a bit more quickly to a destination. However, people who take time to run for periods of 20 minutes or more, three or four times per week, realize a great number of benefits. This type of training results in a stronger immune system, the ability to run faster, better cardiovascular health, better sleep, clearer thinking, and so on.

Most of us unintentionally experience the mindful self-awareness described above many, many times each day (probably more than 100 times each day). We likely bounce back and forth frequently between mindful self-awareness and the default mode of being the thinking mind and its ego. However, these unintentional moments of self-awareness usually last only for a few seconds.

This is especially true during a demanding situation. We become self-aware for an instant, and then we're sucked right back into being our thinking mind and the ego. We spend most of our time being that voice inside our heads that is constantly analyzing, judging, or just blabbering about nonsense, and which is often accompanied by mental images that capture more of our attention than the outside world.

Even in undemanding situations, the default state of being for most of us is being stuck in the thinking mind and its ego. In fact, in the 2010 study mentioned in Neuro Note 1.1, conducted by Dan Gilbert and

Matthew Killingsworth of Harvard University, which involved more than 2,000 people, it was revealed that we spend nearly 47 percent of our time essentially lost in thought, engaged in mind wandering.

As you've likely noticed in your own experience, partial distraction is much more prevalent. When I ask people in the training programs I conduct how much of the time they feel that they are at least partially distracted by thinking, they usually agree that it's at least 90 percent of the time, and many state it's more like 95 percent of the time or more.

Just as with randomly running without intentionally training, we receive few lasting benefits from our random, brief experiences of being mindfully self-aware. However, mindfulness training allows us to go far beyond just randomly being self-aware for brief instances. The practice enables us to *intentionally* become mindfully self-aware and to gradually develop the ability to maintain that mindful self-awareness for as long as we wish, even in demanding situations.

Neuro Note 1.4: Shifting from Mind Wandering to Present-Moment Awareness: It Gets Easier with Practice

Emory University neuroscientist Wendy Hasenkamp and colleagues proposed a model of how fluctuations between mind wandering and attentional states during practicing mindfulness take place. They proposed a cycling between the following states: mind wandering → awareness of mind wandering → shifting attention → sustained attention.[31]

With an innovative study design they then tested what brain activation patterns are associated with each phase in experienced mindfulness practitioners while practicing breath awareness. As expected, during mind wandering the DMN, including the mPFC and PCC, was activated. Awareness of mind wandering activated the salience network, including the dorsal ACC, which plays an important role in conflict monitoring and error detection and here probably was activated because of the mismatch

between the intended state of breath awareness and the current state of mind wandering.[32] Switching attention from mind wandering back to the breath was associated with activation in the frontoparietal central executive network, including the lateral PFC, which remained active during sustained attention. This is in agreement with the known role of the lateral PFC in redirecting attention.[33]

Interestingly, in the study by Hasenkamp and colleagues, the more experienced the mindfulness practitioners were, the less brain activation they had while shifting the attention from mind wandering to the breath.[34] This finding suggests that with more practice less effort is required to shift to a state of present-moment awareness. Other authors reported similar findings.[35]

For example, West Virginia University neuroscientist Julie Brefczynski-Lewis and colleagues found an inverted *u*-shape pattern of brain activity in brain regions that support shifting and sustaining attention, including the lateral prefrontal cortex: During focused attention training, mindfulness practitioners with an average of 19,000 hours of experience showed more brain activation than novices, but mindfulness practitioners with an average of 44,000 hours of experience had less activation.[36]

Becoming and remaining mindfully self-aware can eventually become a new habit—a habit we can apply as often we like. Any moment of the day that we remember to try, we can make the effort to shift from being our thinking mind and its ego to becoming and remaining mindfully self-aware. Over time, with practice, we can change our default state from being the thinking mind and its ego to being mindfully self-aware.

We can also train to develop highly refined levels of self-awareness that allow us to routinely see important aspects of ourselves that many people never see in their entire lives and develop the wisdom that is the key to both leadership and personal excellence. This intentional

mindfulness training, therefore, is the key to realizing the benefits we'll explore in the coming chapters.

Becoming and remaining mindfully self-aware—and developing highly refined self-awareness—likely sounds incredibly simple, and it is. We don't have to go someplace special like a gym, and we don't have to get sweaty. However, the practice is definitely *not* easy. In fact, training for mindful self-awareness may be the most challenging thing we will ever do in our lives. The mind can be incredibly difficult to tame.

But mindful self-awareness can eventually become a new habit, and the effort we put into developing this habit is certainly worth it. As you'll discover in this book, the payoff is tremendous. When you practice mindfulness, you'll be developing what might be the ultimate habit for leadership and personal excellence.

Review Questions

How would you describe the "shift that changes everything," and why is it so important for leadership and personal excellence?

How can you apply the attitude of *beginner's mind* to realize mindful self-awareness?

What are the three general benefits of being mindfully self-aware that we explored in this chapter?

What is the difference between randomly being mindfully self-aware for brief instances, which almost everyone is many times every day, and intentionally becoming mindfully self-aware and sustaining it for longer periods?