PEAK MIND

FIND YOUR FOCUS, OWN YOUR ATTENTION, INVEST 12 MINUTES A DAY

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Cognitive (thinking, planning, decision making)

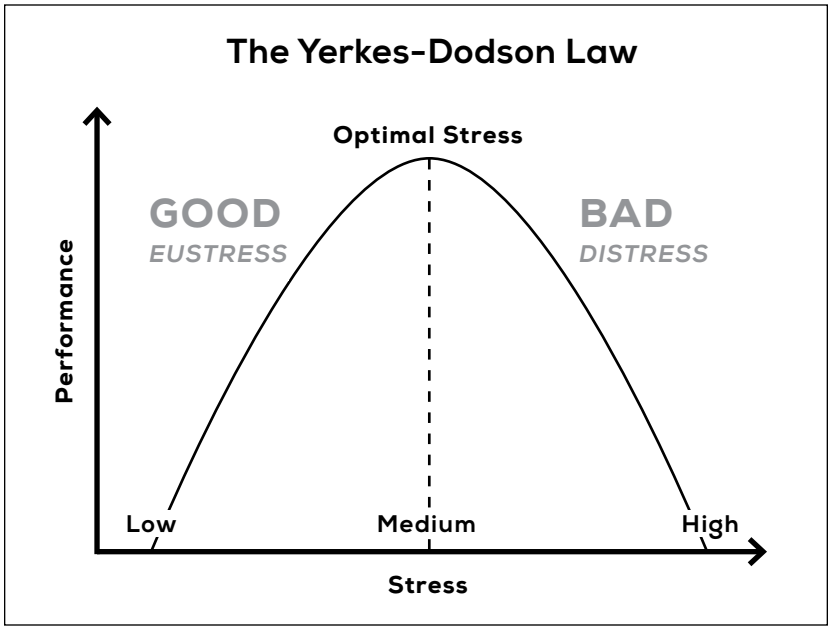
Flashlight	You can follow and sustain a train of thought.
Floodlight	You have situational awareness—you can notice thoughts, concepts, and perspectives that relate to your task.
Juggler	You have a goal and can hold it in mind, knowing what you need to do next to move toward accomplishing it. You overcome distractions and "autopilot" behaviors (like picking up your phone) that could derail you.

Social (connecting, interacting)

Flashlight	You can direct the beam of your flashlight toward other people to listen and connect.
Floodlight	You can gain awareness of the tone of someone's voice, and of other people's emotional states.
Juggler	You can negotiate a conversation with multiple people, select relevant points of view to hold in mind, then filter and evaluate them when conflicting opinions are expressed.

Emotional (feeling)

Flashlight	You can turn your flashlight toward your own emotional state, first to know what it is, and then to recognize when it's interfering with your ability to do other things.
Floodlight	Your emotional reactions alert you to how you are feeling. You can see if they're "proportionate" (appropriate to the situation) or not.
Juggler	You can execute an emotional course-correction when required.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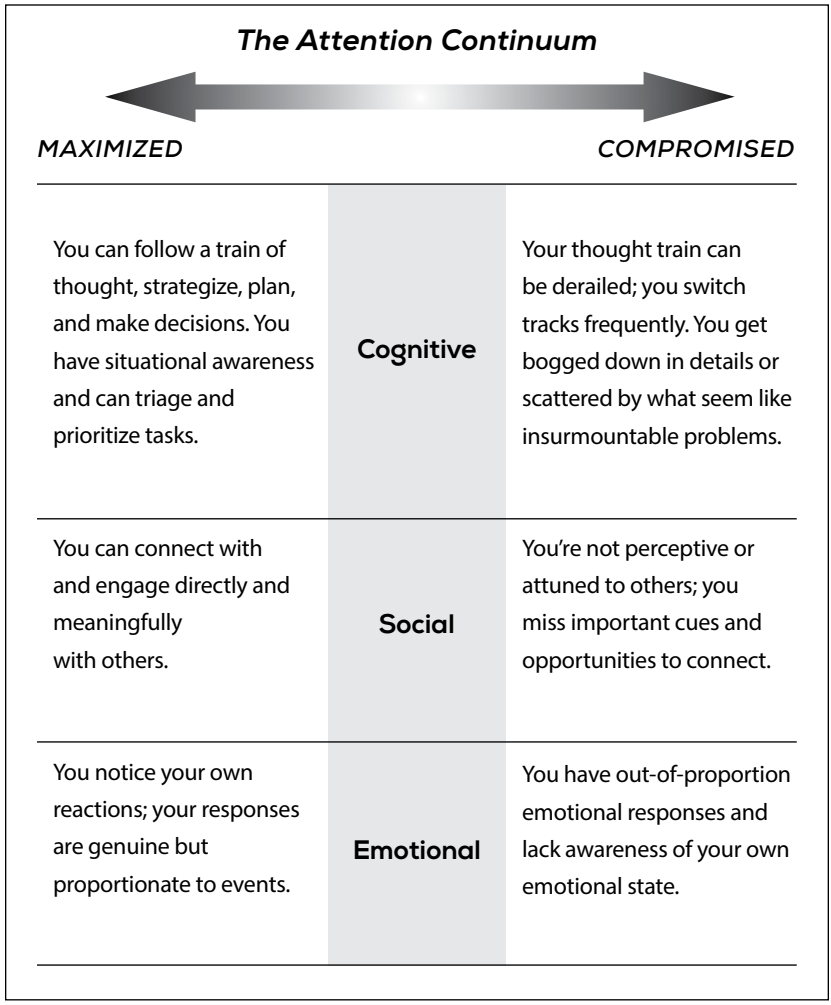

The table above provides a visual overview of what it looks like when attention is *maximized,* and what it looks like when attention is *compromised.*

Glance down the left-hand column of the table and what you'll see is, in essence, the profile of a person successfully using attention. This is what it looks like when attention is strong, flexible, and well-trained. But the truth (supported by mounting evidence from my own lab as well as the broader research field) is that none of us fall reliably or exclusively into that column.

There's a famous test of attention given to people of all ages: You sit at a computer, and a series of letters appears on the screen before you, one after the other. Your job is to say the color of the ink for each cluster of letters, as quickly as you can. Sounds simple, right?

Try it with the graphic shown on this page. Skim down and say out loud the color of the ink, as quickly and accurately as you can.

Easy, right? No problem. But now I want you to do this again with the list on the next page. Your task is the same: go down the list and say the ink color one by one. To be clear: say the *color of the ink*—not the word itself. Ready, set, go!

Easy again? Probably not.

There's no computer measuring your response times right now, as there would be if you were taking this test in my lab. But you might have noticed that you were slower than you were with the first list. And you likely hesitated, taking just a beat longer when you came across the fourth one down. Your urge to say "black" was probably very strong. You might have even blurted it out and then corrected yourself, to say "gray."

The instructions were so simple. So why did this happen? *Because I set your brain up to battle with itself.* The battle was between what happened automatically (you read the word) and what the instructions asked you to do (report the color of the ink). This mismatch produced what we call a "high-conflict" moment.

And in the brain, such moments signal that there is a problem. In response, executive attention is summoned to provide a "power boost." With attention on hand, you can more easily override automatically reading and saying the word. Your behavior becomes more aligned with your goals. We can track this in the lab. Responses are faster and more accurate for high-conflict trials that follow other high-conflict trials versus those that follow low-conflict trials—which sounds like a good thing. And sometimes it is. But it can also become a root cause of depleting our attention.

CORE PRACTICE: FIND YOUR FLASHLIGHT

1. ***Get ready . . .* Sit in an upright, stable, and alert posture.** You want to be comfortable, but not overly relaxed. Think "upright," not "uptight." Sit up straight, shoulders back, chest open, in a posture that feels natural and embodies a sense of dignified presence. Let your hands rest on the armrest, or on the seat beside you, or on the tops of your legs. Close your eyes, or lower your eyelids to have a soft gaze in front of you, if that's more comfortable. Breathe, and follow your breath. You are *following* the breath moving at its natural pace—not controlling it.

2. ***Get set . . .* Tune in to breath-related sensations.** These may be the coolness of the air going in and out of your nostrils, the sensation of your lungs filling up your chest, your belly moving in and out. *Choose one area of the body—related to whichever breath-related sensations feel most prominent—to focus on for the rest of this exercise.* Direct and maintain your attentional focus here, like a flashlight with a strong, bright beam.

3. ***Go!* Notice when your flashlight has moved . . . and then move it back.** The real work of this exercise, after you've chosen the target for your flashlight and committed to resting your attention there, is to pay attention to what happens next. *Notice* when thoughts or sensations arise that pull your flashlight off-target. It could be a sudden reminder that there's something you need to do right after this. It might be a memory, floating up. It might be an itch! When you notice that your flashlight has been pulled away, redirect it back to your breath. Nothing special to do other than this simple, gentle "nudge" that acts supportively to move *the flashlight back.*

CORE PRACTICE BOOSTER: WATCH YOUR WHITEBOARD

1. ***Repeat the previous steps.*** We begin the same way we did with the basic *Find Your Flashlight* activity, by sitting in a chair, comfortable but upright, resting your hands in your lap, and closing or lowering your eyes (to limit visual distraction). Again, select prominent breath-related sensations. Remember the metaphor of your attention as a flashlight, the beam pointing toward your selected breath-related body sensation. When your flashlight drifts to something else . . .

2. ***Notice where it goes.*** This is a new step! In the first exercise, I asked you to notice if attention wandered away, and if so to immediately move your flashlight back to your breath. This time, I want you to pause for a moment and observe where the flashlight is now directed.

3. ***Give it a label.*** Identify what *type* of distraction has appeared on your whiteboard. Is it a thought, an emotion, or a sensation? A *thought* could be a worry, a reminder, a memory, an idea, an item on your to-do list. An *emotion* could be a feeling of frustration, an urge to stop doing the practice and do something else, a twinge of happiness, a swell of stress. A *sensation* is something in your physical body: An itch. A sore muscle. Noticing that your back hurts from sitting there, or noticing something you heard, smelled, touched, or saw (such as a door slamming, food cooking, the cat jumping in your lap, lights flashing).

4. ***Make this a quick process.*** Notice if you begin going down a rabbit hole of elaborating on the distraction, or asking why you are thinking about this particular topic, or defaulting to unsupportive habits like chastising yourself for getting distracted in the first place. It is not your job right now to answer these questions or reprimand

yourself. Now is actually the time to notice what is on your white-board but *not to engage with it.* Just label the contents as best you can from these three categories: *thought, emotion, sensation.* And then . . .

5. ***Move on.*** Come back to the present moment, back to your breath, after every instance of labeling. If it's a strong experience, it might pop up repeatedly—then just label it again.

6. ***Repeat.*** Each time you notice yourself mind-wandering, tag the content of your mind-wandering (as thought, emotion, or sensation) and then come back to your breath.

CORE PRACTICE: BODY SCAN

1. As with the other practices, begin by sitting comfortably, closing your eyes, and finding your flashlight: bring your attention to your breath sensations.

2. But now, we're not going to keep it there, on the breath. We're going to move it through the body. We're going to keep that focus—that beam of attention—concentrated, though the focus will move, sweeping slowly, like a searchlight through the body.

3. Start by directing your attention to one of your toes. Take note of whatever sensations you notice there. Cold? Warm? Tingling? Tightness in your shoes? Nothing? Notice it, then move on to the other toes, and the other foot.

4. Go slowly! If you're trying this for three minutes, as with the last exercise, think of your body in thirds and take about a minute with each section. Gradually move your attention up from your lower body—your lower legs and then your upper legs—to your core: the pelvic area, lower torso, upper torso; to your upper body: your shoulders, upper arms, lower arms, and hands. Then finally move attention up to your neck, your face, the back of your head, and finally the top of your head.

5. Pay attention to each sensation—or lack of sensation—rising and falling away, moment by moment, but don't fixate on it. Move the flashlight along.

6. Throughout this practice, as you are moving your attention slowly up your body, whenever your mind wanders simply return it to the area of the body where your attention was directed before the mind-wandering occurred, then continue.

"Mindful Mode" vs. "Simulation Mode"

Mindfulness is . . .	**Simulations are . . .**
Present-centered (*this* moment)	Past- and future-focused (mental time travel)
Direct experience (not imagined)	Imagined, remembered, hypothetical, or projecting into someone else's experience
Embodied, sensory	Conceptual
Curious; no expectations	Planning, expecting, anticipating
Non-elaborative (not associating or "hyperlinking")	Elaborative, associative, conceptually rich
Non-narrative (no story)	Narrative (strong story)
Non-evaluative; nonjudgmental (no assessing of good or bad, nor of other labels)	Emotional evaluation (positive or negative; rewarding or not rewarding)
No (or low) emotional reactivity	High emotional reactivity (immersed)

"Dropping the Story"

Dropping the story is NOT about . . .	**Dropping the story IS about . . .**
Second-guessing yourself	Reorienting to the present moment with agility
Hesitating	Observing what's *really* happening
Being indecisive	Flexibly responding

CORE PRACTICE: RIVER OF THOUGHT

1. ***Get ready . . .*** This time, stand up! You can always sit if you prefer, in the same way as with the previous practices. But I usually recommend doing this practice in what is commonly known as Mountain Pose. Stand comfortably, your feet shoulder-distance apart. Let your arms relax at your sides, palms out. Close your eyes or lower your gaze.

2. ***Get set . . .*** Find your flashlight and direct it toward prominent breath-related sensations for several breaths. This is always where we'll start with any practice. And at any point in this exercise if you feel yourself getting drawn away (for example, getting caught in a ruminative loop), you can always anchor back on the breath. *Flashlight on the breath* is your home base—return to it whenever necessary, and reset.

3. ***Go!*** Now broaden your awareness so that you are not selecting any target object. Instead, use the metaphor of your mind being like a river. You're standing on the riverbank, watching the water flow by. Imagine your thoughts, memories, sensations, emotions—whatever arises—as if they are flowing past you. Notice what appears there, but don't engage with it. Don't fish it up, chase it, or elaborate on it. Just let it flow by.

4. ***Keep going.*** Unlike in the *Watch Your Whiteboard* activity we did, you're not going to be actively "labeling" the stuff that you notice on your whiteboard, nor returning to your breath once you do. Your job right now is not to be making distinctions between which content is useful or relevant, and what's mind-wandering. You're not even going to try to *stop* your mind from wandering. The river will keep flowing—there isn't anything you can or need to do about that. This is the key to open monitoring: *you allow your mind to do*

what it will do. Your job is simply to observe that flow, at a distance, without engagement or participation.

5. ***Troubleshooting.*** If you have difficulty letting things pass you by, come back to your breath. Imagine your breath sensations as a boulder in the middle of all that flowing water. Rest your attention on that stable, steady object; when you feel ready, broaden your attention again and go back to monitoring.

CORE PRACTICE: CONNECTION PRACTICE

1. Begin this practice as you have the others, sitting comfortably yet alert. Anchor on your breath and focus on breath-related sensations.

2. Now shift to bringing a sense of yourself into your mind, at this very moment in your life.

3. Silently repeat the following phrases to offer yourself well-wishes (three minutes). Remember: the point is to *offer* yourself well-wishes, not make requests or demands for them. Saying these phrases supports that:
   May I be happy
   May I be healthy
   May I be safe
   May I live with ease

   The phrases and their order are not important. Some people may say, *May I be free from suffering* instead of *May I be safe.* Others may wish to say, *May I find peace* instead of *May I live with ease.* The important thing is that you choose phrases that resonate with you *and* that convey a feeling of goodwill to the recipient.

4. Next, while allowing this sense of yourself to recede from your focus, call to mind someone who has been very good to you in this life, very kind and supportive, someone you might describe as a benefactor. Silently repeat the phrases below, offering them to this person:
   May you be happy
   May you be healthy
   May you be safe
   May you live with ease

5. Now, letting your sense of this person recede, bring to mind the image of someone with whom you have no real connection and for whom your feelings are neutral. It could be someone you see now and again but don't have strong feelings for, one way or another. Perhaps it's a neighbor you pass while walking your dog, a parking lot attendant you see daily, or a grocery store clerk. Mentally offer them the phrases.

6. As a sense of this person recedes from your focus, next bring to mind an image of someone with whom things are challenging at this time in your life. This is often called a "difficult person." There is no need to pick the *most* challenging person in your life. Remember, you are not endorsing their view and are not necessarily even forgiving their actions in the past. You are simply offering kindness to them as a practice aimed at strengthening your ability to take another's perspective, realizing that—like you—they too wish for happiness, health, safety, and ease. With this in mind, mentally offer them the phrases.

7. Now move on to everyone in your home, community, state or province, and country, and continue to expand outward until you include all beings everywhere. Spend a few moments visualizing each place (your home, your community), and then offer the phrases to everyone there.

8. Throughout this practice, notice when your mind wanders away from the chosen focus, and gently guide your attention back.

9. When you're ready, spend a few moments anchoring on your breath to end the practice.

CORE TRAINING FOR THE BRAIN

As we've discussed throughout this book, you need attention for almost everything you want to do, and to do it well. The brain's attention system serves as our *mental* core. Like the body's physical core:

- it's engaged during most of our activities,
- its core strength determines how stable and agile we feel as we maneuver through the world, and
- there are effective exercises we can do to strengthen it.

While a plank, bridge, or sit-up each targets slightly different muscles, they all improve coordination between muscle groups and bolster core strength. Mindfulness exercises are intended to strengthen and improve coordination between brain networks that carry out a variety of attentional functions: our ability to direct and maintain focus, notice and monitor ongoing conscious experience, and manage goals and behavior. With more repetition comes improved coordination between these brain networks—and greater core strength. What this feels like in our lives is greater mental stability and agility, which

ultimately empower our effectiveness and fulfillment, and deepen our sense of well-being and purpose.

This book has introduced you to three types of practices that work to strengthen attention. The first category of practices was about strengthening concentrative focus—the intention was to narrow and steady the beam of your attentional flashlight. These practices build your attentional control. Your goal was to direct your attention first to a specific target object—your breath (*Find Your Flashlight)*—and then to specific bodily sensations (*Body Scan*), and maintain it there for some period of time. When your attention wandered away from that object, you brought it back. Together, each of these steps comprises the "attentional reps" of the practice. Focus, maintain, notice, redirect. Repeat. The more reps you do, the more you strengthen these aspects of your attention.

The second category of practices is about *keeping watch*, as you monitor and notice the ongoing processes and content in your moment-to-moment experiences. Unlike the concentrative practices, here your attention should be receptive and broad. These were the *open monitoring practices* you tried. The challenge with these was different: There was no particular target for your attention; instead, you maintained a stable watch—noticing, monitoring, receptive, open. You took an observational stance. You allowed thoughts, emotions, and sensations to arise and then pass away.

We find that when people train using open monitoring techniques, which are some of the more challenging exercises, they strengthen that open, receptive form of attention. Practice this regularly, and you will be more capable of recognizing, faster, that your thoughts are not facts. You'll be able to decenter and drop the story with more ease. Just as your body grows stronger by doing regular physical training, this mental training will build *meta-awareness,* a heightened awareness of the rising and passing away of the con-

tents and processes of consciousness, such as thinking, feeling, and perceiving.

Doing these practices consistently over time will change the functioning and structures of your brain. In fact, even the *very first twelve minutes* you spend will immediately change how your brain operates—*but only for those twelve minutes.* After, it will "default" back to its typical mode of processing. But over time, as you establish a consistent practice of five or more days per week, week after week, these new ways of paying attention increasingly become the default. While this adds up to better brain functionality, how do concentrative and receptive practices support us in the real world? How do they help support a *peak mind*?

William James, the philosopher and psychologist who long ago pointed out that training a wandering mind would be the best kind of education we could offer, also observed: "Like a bird's life, [the stream of consciousness] seems to be made [up] of an alternation of flights and perchings." A peak mind balances and values the flights and perchings, the doing and being, the directing and receiving.

You learned a third type of practice as well, which emphasized connection and built on your strengthening of concentrative and receptive attention. But unlike the prior practices that emphasize observing the unfolding of whatever is occurring in the here and now, the connection practice is prescriptive: We are directing attention in a concentrative manner to the concept of well-wishes toward ourselves and others. During this practice, attention is utilized for reappraising and perspective-taking. This type of practice is designed to help us move out of a limited but accustomed way of paying attention and to experiment with using a different angle: we look at ourselves as worthy of receiving well-wishes for our happiness, safety, health, and ease. For example, you may be used to thinking of yourself as "too busy" for this kind of activity; you may even find it uncomfortable

to accept these wishes. This practice is experimenting with allowing ourselves to receive them. We also do this for others as we progress through the practice. This is another key aspect of a peak mind—the capacity to be connected and caring toward ourselves and others.

Here, I've laid out a recommended weekly schedule, based on our most current data from the lab and the field, for training your attention. The instructions are informed by current science on behavior change: Start with extremely small goals, achieve them, don't miss out on the feel-good sense of success (this is key!), and repeat. Slowly increase the size of the goal and keep achieving it, and you'll continue the rewarding feeling of accomplishing it. This is how to best support yourself in creating a habit—go small, feel the success of completion.

Success here does not mean that your mind never wandered, or that you didn't move at all, or that you experienced bliss, peace, or relaxation. Rather, success means you put in the time and did the practice. Success is completion. To ensure that you complete the practice, tie it to some other activity that you successfully complete each day. It could be brushing your teeth, exercising, making yourself a cup of coffee. Researchers on the science of behavior change and habit creation recommend choosing an "anchor activity" for any new thing you want to add to your day. When you do the "anchor," you perform the new habit you want to build. So, for example, your anchor could be *coffee:* "When I turn on the coffee maker to brew, I sit down and do my practice."

Throughout this book, I asked you to do three minutes per practice when I introduced you to each of the practices. As you embark on habit formation of daily practice, I encourage you to keep the time demands to 50 percent of what you feel is comfortable. Then once you are consistent, slowly expand the time. In the formal program, I recommend twelve minutes of daily practice. Remember: it's

not a race. Do what's manageable. Straining doesn't make for faster progress.

The schedule runs for four weeks. My hope is that, once you hit the end of week four, you'll begin to experience practice-driven shifts in your daily life and that those results will keep you inspired to keep going. But here is the key: for mindfulness training to work for you, you've got to work it. This means a commitment to practice. Practice equals progress.

WEEK ONE

We begin with the fundamental exercise that is the building block for every other practice: *Find Your Flashlight*. This simple but powerful breath awareness exercise is your foundational skill.

CORE PRACTICE			
DAY 1	Find Your Flashlight	12 minutes	
DAY 2	Find Your Flashlight	12 minutes	
DAY 3	Find Your Flashlight	12 minutes	
DAY 4	Find Your Flashlight	12 minutes	
DAY 5	Find Your Flashlight	12 minutes	Goal
DAY 6	Find Your Flashlight	12 minutes	Stretch
DAY 7	Find Your Flashlight	12 minutes	Big Reach

What to Focus On This Week

A reminder: in this exercise, we are *focusing* our attention on the breath, but not constraining or controlling it. This is not about deep

breathing—a valuable activity for relaxation, but not what we're doing here. Instead of controlling the breath, you are watching it as it occurs in real time, with an awareness of doing so. You may find your breath slows down a bit during the practice, or you have moments where you drift into deeper breathing. This is fine, since as we said this practice is about noticing your breath, not controlling it. The fact that you notice natural variations in your breathing patterns is a good sign. You're on-task!

Going beyond the formal practice, integrate this into your life as much as possible. Add a mindful orientation to an activity you already have to do. Example: mindful teeth brushing. If you're already thinking about your to-do list as you're scrubbing, bring your flashlight back. Steady it on the sensations: the cool, refreshing tingle of the toothpaste, the feel of the bristles, the muscles of your hand and arm moving. It takes zero extra minutes to layer a mindful orientation into some of your existing daily routines.

What Week One Might Feel Like

A lot of people report that their mind is "too busy." I hear it all the time: "It's not working; my mind won't sit still." But understand this: Your brain is *not* too busy—you just have a human brain! As we discussed, it works like a "thought pump." That's exactly what it does. Your job is not to stop it—your job is to exist with it, and to do the work of placing your attention back where you want it. *That* is the workout.

Frequently Experienced Challenges

Many new practitioners go into this carrying a lot of "mindfulness myths" along with them. These can be destructive and demoralizing. Here are a couple of reminders, to debunk any damaging expecta-

tions that may be lingering from what you've heard about mindfulness in the popular discourse:

- *You are not "clearing your mind."* This is not possible, and not what mindfulness practice asks you to do.
- *Your goal is not to feel peaceful or relaxed.* Images of mindfulness practitioners often exude this expectation—remember, this is not what's happening. This is an *active* mental workout.
- *There is no special state to achieve.* There's no "blissed-out" state you are aiming to experience; you don't need to feel transported. In fact, the whole point is to be *more* present in your current moment. You're not traveling elsewhere. You're going to feel your hip bones against the chair. You're going to notice every itch, every desire to move, every shift away from the present moment. You'll notice every small sensation and outrageous or distressing thought. *That's success.*

What Success Looks Like in Week One

That you did it! If you did your five days, for twelve minutes each day, you get a gold star. It doesn't matter how squirrely your mind felt, or if you opened your eyes to check the time every minute. You got yourself in the chair with the intention to practice, and you did it—that's a win.

You might have caught yourself mind-wandering a lot this week. Guess what? That's great. No matter how long you were mind-wandering, the moment you *notice* it is your success point. So, if you caught yourself mind-wandering a hundred times in a session, that's a lot of success. This is a big reframe, but an important one: what we think is a failure is actually a win.

How Week One Skills Will Show Up in Your Life

If you're really able to *find your flashlight*—that is, know where your attention is, moment by moment—you can then realize whenever you're mind-wandering during a conversation or not mentally present in a meeting, or notice any moment in your life when you're displaced in time and space. You'll notice this happening more and more, and you'll be able to guide your flashlight back, just as you do in practice. You'll also develop more confidence in redirecting it, in a supportive yet firm manner.

WEEK TWO

Last week you found your flashlight.

Now, we're going to move it.

CORE PRACTICE			
DAY 1	Find Your Flashlight	12 minutes	
DAY 2	Body Scan	12 minutes	
DAY 3	Find Your Flashlight	12 minutes	
DAY 4	Body Scan	12 minutes	
DAY 5	Find Your Flashlight	12 minutes	Goal
DAY 6	Body Scan	12 minutes	Stretch
DAY 7	Find Your Flashlight	12 minutes	Big Reach

What to Focus On This Week

The target of your attention in this week's practice is body sensations. The workout is not only keeping the flashlight steady, but also moving it—your focus becomes something you smoothly

sweep through the body. Notice that this week's schedule is still asking you to continue with your basic *Find Your Flashlight* practice, every other day. What we've found through our work with various cohorts is that interleaving the practices in this way is the most effective way to build that core attentional strength.

Find Your Flashlight is going to be a lifelong practice—you don't "progress" past it. You keep expanding this practice—noticing more-nuanced changes in your moment-to-moment experience; the arising of an emotion, sensation, or thought; the urge to shift away; the feeling of returning back. The granularity will also increase the more you practice. It will strengthen your capacity to perform and benefit from the other practices as well; meanwhile, the other practices will inform this one. You may feel more moments of insight—*aha!* moments when you suddenly feel a sense of knowing, understanding, or perceiving something that had previously eluded you. This could be about a mental habit you have, or a challenge in a relationship, or a more fundamental understanding of the nature of things (for example, impermanence and interdependence).

What Week Two Might Feel Like

Be aware that when you introduce the *Body Scan*, you may notice more pain and discomfort in the body. This can seem like a downside at first, and in fact we wondered exactly this with soldiers: Why do we want to make them more aware of discomfort and pain when they have to go out and experience it? But more knowledge of the body translates into greater capacity to act to intervene with anything you notice going on. (Foot pain, when attended to, could signal a soldier to notice that she needs more padding in her boot. This can be the difference between completing a fifty-mile hike successfully versus spraining her foot.) You will also notice that your story about the

pain may keep the pain around for longer or with more intensity. You'll be able to parse the monolithic experience of pain, separating it into undulating shifts of sensations—tightening, piercing, warmth, and so on. The pain will begin to be seen as more of a constellation, and the stories about physical sensations may quiet, as you notice the mind-wandering and return back to the raw data of the physical sensations.

Frequently Experienced Challenges

Some people find it challenging to perform the *Body Scan* on their own. If you find it difficult or distracting to guide yourself through it, seek out guidance, such as a recording to follow.

And, watch out for a feeling of "chasing the high." You might have had a couple really good, successful-feeling sessions last week. Don't let yourself fall into this striving or chasing mode. Mindfulness practice as attention training won't look (or feel) like exponential upward improvement. Often, "success" doesn't *look* like success. A session that feels like a failure was probably a great workout for your brain.

How Week Two Skills Will Show Up in Your Life

Whenever anything happens—at work, at home, wherever you are—there's a whole constellation of sensations that show up in the body. Stress, anxiety, elation, fear, sadness, excitement—they each have associated physical sensations. You'll be noticing this more and more. This means that you can take action as you tap into these sensations, notice them quickly, and understand what they mean. For example: I know that I've gotten a lot better at realizing the sensations that begin to build when worry sets in. I feel it first in my chest, but then I check in with my jaw, which I usually find I've been clenching. With this

awareness, I can intentionally relax my jaw and pay attention to the issue causing the worry, or at least acknowledge that I've gotten lost in a simulation, and then be able to engage with the next moment in the best way. These are micro-interventions that can help us course-correct as we become more attuned to our minds and bodies.

Integrate the *Body Scan* into your day. Remember: it takes *zero minutes* to add this into a task you might otherwise perform mindlessly. Do the *Body Scan* in the shower as you wash from head to toe, or as you just step in and feel the water washing over you. Don't miss it.

WEEK THREE

This week, your focus becomes attention itself.

CORE PRACTICE			
DAY 1	Find Your Flashlight	12 minutes	
DAY 2	River of Thought	12 minutes	
DAY 3	Find Your Flashlight	12 minutes	
DAY 4	River of Thought	12 minutes	
DAY 5	Find Your Flashlight	12 minutes	Goal
DAY 6			Stretch
DAY 7			Big Reach

What to Focus On This Week

This week, *Find Your Flashlight* is still your touchstone practice. But as we shift into *River of Thought*, the focus of your attention is now your own mind. Remember: with *River of Thought*, you visualize your own mind as a moving river. All kinds of stuff is going to float by in

that moving water—your job is to observe it and let it go. Don't reach down to grab any of those thoughts or worries or memories—simply notice them and let them float on by. Draw on the decentering and *Watch Your Whiteboard* mini-practices offered to exercise your capacity to step back and observe the mind. If you do find yourself wrapped up in something, go back to your breath—think of it as a boulder in that river that you can rest your attention on and regain your stability. Then begin observing the moving water again.

What Week Three Might Feel Like

Not engaging and not elaborating are active attentional skills that require core strength to perform. You will build this capacity over time, but doing this for the first time in a twelve-minute formal practice can feel as hard as trying to hold a plank when you can't yet do a push-up. You'll get better at this. If you find yourself engaged with thoughts, worries, or memories that have floated up, remember: that realization is a win. *That's* meta-awareness—you just did it. Reclaim your flashlight, redirect it to the breath to anchor yourself for a bit, and then move back into observing the River of Thought again.

Frequently Experienced Challenges

You'll start to become more aware of how much your mind is wandering. This can feel uncomfortable, or make you wonder if you're getting worse instead of better. You're not! You're simply growing more aware. Remember: your mind has always been wandering, but you're just catching yourself more. Again: success point.

You may start noticing what's arising in your mind more and more (both during formal practice and throughout the day), and it might not always be nice. You may find yourself realizing, *Man, I get angry*

a lot. Or: *I'm obsessing over food (or sex or video games) and can't stop.* These are not fun things to realize. Reframe it: this is information you can use. It's like getting to know a new friend. You are supportive yet firm, befriending yourself, quirks and all.

How Week Three Skills Will Show Up in Your Life

You grow the capacity to reflexively ask yourself, *What's happening right now? What's my mind doing? What am I really upset about? Why am I consumed by this?*

You'll notice that you start defaulting to taking a more observational stance toward your own thought processes; you get in the habit of checking with yourself to see if you have a story, and how it might be affecting your interpretation of events or feelings. This is an important part of what having a peak mind means, and you're starting to get there: you are able take a broad, receptive, observational stance.

You can "monitor" your mind in this way, outside of formal practice. Try this: While driving, walking, or riding the subway, don't listen to music or a podcast; don't take a phone call. Just sit and let your mind roam. Notice where it goes and what comes up.

WEEK FOUR

The flashlight of your attention moves outward, toward others.

CORE PRACTICE			
DAY 1	Find Your Flashlight	12 minutes	
DAY 2	Connection Practice	12 minutes	
DAY 3	Find Your Flashlight	12 minutes	
DAY 4	Connection Practice	12 minutes	
DAY 5	Find Your Flashlight	12 minutes	Goal
DAY 6	Connection Practice	12 minutes	Stretch
DAY 7	Find Your Flashlight	12 minutes	Big Reach

What to Focus On This Week

This week's new practice is not only about directing your flashlight toward other people, but also about having well-wishes for yourself, even and perhaps especially when you mind-wander or end up in the loop of doom. Big parts of this practice involve remembering that the

human brain works this way by default, and then having kindness for yourself as you begin again.

Notice that *Find Your Flashlight* is still interleaved: this foundational practice is now reinforcing *all three* of the other practices. You draw on this key skill as you focus on body sensations, notice what arises in your mind, and practice directing well-wishes to yourself and others. *Find Your Flashlight* is the lifelong work of attention training: it reinforces all the other practices.

What Week Four Might Feel Like

You might notice that spending twelve minutes each day making well-wishes makes you more likely to be supportive instead of punitive, curious instead of righteous, hoping for the best instead of expecting the worst. You may find yourself more easily able to "see it from someone else's eyes" during a disagreement. This is what reappraisal and perspective-taking look like in our lived experience.

Frequently Experienced Challenges

You may find that sometimes the phrases feel empty, as if you're merely reciting a word salad, or the words lose their meaning. If this happens, remind yourself that this is a concentrative practice. You want to use each phrase as the *complete* focus of your attention. Slow it down. Understand each word. Fully comprehend its meaning. And if the phrases feel too prone to elaboration and mind-wandering, try to just use your inner speech to say the words, one by one. The key is to comprehend and extend the well-wishes, without checking out or diving into the story of each.

If you experience discomfort with directing phrases with well-wishes toward yourself, remember that this is part of the workout: we

are intentionally practicing this new perspective. Notice this discomfort, but continue.

You may also feel nothing at all—this is normal! And it's still doing the work—so keep going. The effects of the workout can show up much later. Here's an example: You're saying these things for a week or two, and you feel as if there's nothing really going on. Then all of a sudden you're about to raise your voice or snap at your spouse or child and you catch yourself, realizing that your intention *is* for them to be happy, and there might be a better way to say this. You can shift from reacting to responding. You end up communicating the same message, but without the reactive tone.

How Week Four Skills Will Show Up in Your Life

And finally—as always—integrate this into your day. You don't have to be sitting with your eyes closed to extend well-wishes toward others, or even toward yourself. Again, layer this into your routine. Try it as you're walking: With the cadence of your steps, say silently to yourself, *May I be happy, may I be healthy. . . .* Wish it for yourself or someone you know, or extend it toward any living thing that you see. Have you ever been in a store or other public setting and become annoyed with a person you don't know? *May you be happy!* No reason to waste time occupying your thoughts with anger. You may notice that you are more easily able to "get on the same page" with people as you tune in to their mental models, or that interpersonal conflicts are more easily resolved, or that people you previously looked past come alive to you.

WEEKS FIVE THROUGH FOREVER

Keep going!

DAY 1		
DAY 2		
DAY 3		
DAY 4		
DAY 5		Goal
DAY 6		Stretch
DAY 7		Big Reach

From here on out, the schedule is up to you! You know by now that you'll need to practice for a minimum of twelve minutes, aiming for five times per week, in order to see benefits in your attention system. But the combination of practices is completely customizable. Most people report that they have a practice they particularly like.

Remember: They are all mutually reinforcing, and they each incorporate components of the others. They are all part of the core workout. So choose what works for you.

You can select a different practice each day. You can combine the practices to equal twelve minutes. I like to do *Find Your Flashlight* or *River of Thought* for the first twelve minutes, then finish with a shorter *Connection Practice*.

As you practice these skills for twelve minutes, in a chair in your living room (or wherever you do this attentional workout), they're going to start showing up for you: in your work, in your relationships, in the arc of your life as you meet challenges and try to hold to your goals and dreams. If those twelve minutes feel too hard, remind yourself: You're not doing this to be an Olympic-level breath follower! You're doing it to strengthen your mental core, to power up your attentional stability and agility.

With mindfulness training, you can use your attention to disrupt old, ineffective ways of navigating the world. When you have a peak mind, you have the power to flip the script.

The Peak Mind Pivot

There's the standard way of thinking, and then there's the Peak Mind Pivot. It's not that the standard way of thinking isn't valuable—it's that the Peak Mind Pivot greatly *expands your options.*

- Standard view: *To think better,* practice thinking.
  Peak Mind Pivot: Practice being aware that you are thinking.

- Standard view: *To focus better,* practice directing your attention.
  Peak Mind Pivot: Practice noticing and monitoring when you are not focused.

- Standard view*: To communicate better,* get clear on what you want to say.
  Peak Mind Pivot: Get better at listening.

- Standard view: *To understand yourself,* identify qualities of who you are.
  Peak Mind Pivot: Disidentify and unyoke your perspective from me/I so you can see yourself and the situation more clearly.

- Standard view: *To feel less pain*, distract yourself from it.
  Peak Mind Pivot: Practice focusing on it non-elaboratively. Don't make up a story about it—simply observe it, and notice how it changes over time.

- Standard view: *To know your mind and emotional disturbances*, analyze them.
  Peak Mind Pivot: Focus on the body when you are experiencing strong emotion to gain more data and greater insight into what is arising.

- Standard view*: If something is intolerable,* reject and suppress it.
  Peak Mind Pivot: Accept and allow it.

- Standard view: *To show your power*, be aggressive.
  Peak Mind Pivot: Extend kindness and show compassion.

- Standard view: *To help others regulate,* control them.
  Peak Mind Pivot: Regulate yourself (first). *Be calm to get calm.*

- Standard view: *To be less distracted,* remove all distractions.
  Peak Mind Pivot: Accept that distractions will arise. Notice them, and practice coming back.

NOTES

Introduction—"May I Have Your Attention, Please?"

1 *missing 50 percent of your life*: Numerous studies have reported mind-wandering by sampling participants during everyday life (Killingsworth and Gilbert, 2010; Kane et al., 2007) as well as during experimental task performance (Broadway et al., 2015; Unsworth et al., 2012). Across these studies, the rates of mind-wandering range from 30 to 50 percent, with a high degree of variability across participants. Rates of mind-wandering are known to vary as a function of age (Maillet et al., 2018), time of day (Smith et al., 2018), and how participants are asked about it (Seli et al., 2018).

Killingsworth, M. A., and Gilbert, D. T. A Wandering Mind Is an Unhappy Mind. *Science* **330**, no. 6006, 932 (2010). https://doi.org/10.1126/science.1192439.

Kane, M. J. et al. For Whom the Mind Wanders, and When: An Experience-Sampling Study of Working Memory and Executive Control in Daily Life. *Psychological Science* **18**, no. 7, 614–21 (2007). https://doi.org/10.1111/j.1467–9280.2007.01948.x.

Broadway, J. M. et al. Early Event-Related Brain Potentials and Hemispheric Asymmetries Reveal Mind-Wandering While Reading and Predict Comprehension. *Biological Psychology* **107**, 31–43 (2015). http://dx.doi.org/10.1016/j.biopsycho.2015.02.009.

Unsworth, N. et al. Everyday Attention Failures: An Individual Differences Investigation. *Journal of Experimental Psychology: Learning, Memory, and Cognition* **38**, 1765–72 (2012). https://doi.org/10.1037/a0028075.

Maillet, D. et al. Age-Related Differences in Mind-Wandering in Daily Life. *Psychology and Aging* **33**, no. 4, 643–53 (2018). https://doi.org/10.1037/pag0000260.

Smith, G. K. et al. Mind-Wandering Rates Fluctuate Across the Day: Evidence from an Experience-Sampling Study. *Cognitive Research Principles and Implications* **3**, no. 1 (2018). https://doi.org/10.1186/s41235-018-0141–4.

Seli, P. et al. How Pervasive Is Mind Wandering, Really? *Conscious Cognitive* **66**, 74–78 (2018). https://doi.org/10.1016/j.concog.2018.10.002.

2 *our attention waxes and wanes*: Views on why attention is prone to distractibility include evolutionary survival pressures (opportunity costs: Kurzban et al., 2013; information foraging: Pirolli, 2007; attentional cycling: Schooler et al., 2011) and

benefits for learning and memory formation (dishabituation: Schooler et al., 2011; episodic memory: Mildner and Tamir, 2019).

Kurzban, R. et al. An Opportunity Cost Model of Subjective Effort and Task Performance. *Behavioral and Brain Sciences* **36**, no. 6, 661 (2013). https://doi.org/10.1017/S0140525X12003196.

Pirolli, P. *Information Foraging Theory: Adaptive Interaction with Information* (New York: Oxford University Press, 2007).

Schooler, J. W. et al. Meta-Awareness, Perceptual Decoupling and the Wandering Mind. *Trends in Cognitive Sciences* **15**, no. 7, 319–26 (2011). https://doi.org/10.1016/j.tics.2011.05.006.

Mildner, J. N., and Tamir, D. I. Spontaneous Thought as an Unconstrained Memory Process. *Trends in Neuroscience* **42**, no. 11, 763–77 (2019). https://doi.org/10.1016/j.tins.2019.09.001.

4 *commercial value of attention has taken center stage*: There is growing awareness, as described recently by Myllylahti (2020) and Davenport and Beck (2001), about the economics of attention as news and social media companies use our attention as their product for sale.

Myllylahti, M. Paying Attention to Attention: A Conceptual Framework for Studying News Reader Revenue Models Related to Platforms. *Digital Journalism* **8**, no. 5, 567–75 (2020). https://doi.org/10.1080/21670811.2019.1691926.

Davenport, T. H., and Beck, J. C. *The Attention Economy: Understanding the New Currency of Business*. (Cambridge, MA: Harvard Business Review Press, 2001).

6 *Whatever we pay attention to is* amplified: Task-relevant information that is attended is enhanced neurally (Posner and Driver, 1992) and phenomenologically in our perceptual awareness (Carrasco et al., 2004).

Posner, M. I., and Driver, J. The Neurobiology of Selective Attention. *Current Opinion in Neurobiology* **2**, no. 2, 165–69 (1992). https://doi.org/10.1016/0959–4388(92)90006–7.

Carrasco, M. et al. Attention Alters Appearance. *Nature Neuroscience* **7**, no. 3, 308–13 (2004). https://doi.org/10.1038/nn1194.

6 *When we experience stress, threat, or poor mood . . . this valuable resource is drained*: Attention is thought to have evolved to prioritize information that advantages an organism's survival. Yet, this can lead to attention being derailed from the task-at-hand. Both acute and chronic stress are known to degrade attentional performance and perturb prefrontal cortical functioning (Arnsten, 2015). Threat increases mind-wandering (Mrazek et al., 2011) as well as captures attention (Koster et al., 2004). Negative mood and repetitive negative thinking decrease performance on tasks of attention and working memory (Smallwood et al., 2009). The costs of stress, threat, and poor mood in psychological disorders have been attributed to the hijacking of attentional resources to process such content, which drains the availability of these resources for other forms of information processing (Eysenck et al., 2007).

Arnsten, A. Stress Weakens Prefrontal Networks: Molecular Insults to Higher Cognition. *Nature Neuroscience* **18**, no. 10, 1376–85 (2015). https://doi.org/10.1038/nn.4087.

Mrazek, M. D. et al. Threatened to Distraction: Mind-Wandering as a Consequence of Stereotype Threat. *Journal of Experimental Social Psychology* **47**, no. 6, 1243–48 (2011). https://doi.org/10.1016/j.jesp.2011.05.011.

Koster, E. W. et al. Does Imminent Threat Capture and Hold Attention? *Emotion* **4**, no. 3, 312–17 (2004). https://doi.org/10.1037/1528–3542.4.3.312.

Smallwood, J. et al. Shifting Moods, Wandering Minds: Negative Moods Lead the Mind to Wander. *Emotion* **9**, no. 2, 271–76 (2009). https://doi.org/10.1037/a0014855.

Eysenck, M. W. et al. Anxiety and Cognitive Performance: Attentional Control Theory. *Emotion* **7**, no. 2, 336–53 (2007). https://doi.org/10.1037/1528–3542.7.2.336.

8 *To win one hundred victories in one hundred battles is not the acme of skill*: Sun Tzu. *The Art of War* (Bridgewater, MA: World Publications, 2007), 13.

9 *We have records of medieval monks in the year 420*: Kreiner, J. How to Reduce Digital Distractions: Advice from Medieval Monks. *Aeon*, April 21, 2019. https://aeon.co/ideas/how-to-reduce-digital-distractions-advice-from-medieval-monks.

9 *The faculty of voluntarily bringing back a wandering attention, over and over again, is the very root of judgment, character, and will*: James, W. (1890). *The Principles of Psychology,* vols. 1–2 (New York: Holt, 1890), 424.

10 *The mind's nature is to forage for information and engage with it*: Todd, P. M., and Hills, T. Foraging in Mind. *Current Directions in Psychological Science* **29**, no. 3, 309–15 (2020). https://doi.org/10.1177/0963721420915861.

11 *Research participants couldn't continuously pay attention when they were instructed to*: They couldn't do it when the stakes were high or when they were motivated to. They couldn't do it even when they were paid to. Attention lapses and performance failures occur even when the stakes (Mrazek et al., 2012) and motivation (Seli et al., 2019) are high, as well as when rewards are offered for not lapsing (Esterman et al., 2014).

Mrazek, M. D. et al. The Role of Mind-Wandering in Measurements of General Aptitude. *Journal of Experimental Psychology General* **141**, no. 4, 788–98 (2012). https://doi.org/10.1037/a0027968.

Seli, P. et al. Increasing Participant Motivation Reduces Rates of Intentional and Unintentional Mind Wandering. *Psychological Research* **83**, no. 5, 1057–69 (2019). https://doi.org/10.1007/s00426-017-0914–2.

Esterman, M. et al. Reward Reveals Dissociable Aspects of Sustained Attention. *Journal of Experimental Psychology General* **143**, no. 6, 2287–95 (2014). https://doi.org/10.1037/xge0000019.

14 *escapism along with other mental coping tactics, like positive thinking and suppression . . . don't help us under high-stress circumstances*: Escapism, formally referred to as avoidance, as well as suppression have been found to increase symptoms of psychological disorders such as depression (Aldao et al., 2010). While positive mood can be beneficial (Le Nguyen and Fredrickson, 2018), under high acute stress (Hirshberg et al., 2018) or longer high-stress intervals (Jha et al., 2020), aiming to increase positive emotion can lead to greater mood and performance disturbances.

Aldao, A. et al. Emotion-Regulation Strategies Across Psychopathology: A Meta-Analytic Review. *Clinical Psychology Review* **30**, no. 2, 217–37 (2010). https://doi.org/10.1016/j.cpr.2009.11.004.

Le Nguyen, K. D., and Fredrickson, B. L. *Positive Psychology: Established and Emerging Issues* (New York: Routledge/Taylor & Francis Group, 2018), 29–45.

Hirshberg, M. J. et al. Divergent Effects of Brief Contemplative Practices in Response to an Acute Stressor: A Randomized Controlled Trial of Brief Breath Awareness, Loving-Kindness, Gratitude or an Attention Control Practice. *PLoS One* **13**, no. 12, e0207765 (2018). https://doi.org/10.1371/journal.pone.0207765.

Jha, A. P. et al. Comparing Mindfulness and Positivity Trainings in High-Demand Cohorts. *Cognitive Therapy and Research* **44**, no. 2, 311–26 (2020). https://doi.org/10.1007/s10608-020-10076–6.

16 *how much and what kind of mindfulness practice is most beneficial is a rapidly developing field*: There are many studies actively underway examining mindfulness practice. For example, see Birtwell, K. et al. An Exploration of Formal and

Informal Mindfulness Practice and Associations with Wellbeing. *Mindfulness* **10**, no. 1, 89–99 (2019). https://doi.org/10.1007/s12671-018-0951-y.

16 *for as little as twelve minutes per day, you can protect against that stress- and overwhelm-related decline in attention*:

Jha, A. P. et al. Examining the Protective Effects of Mindfulness Training on Working Memory Capacity and Affective Experience. *Emotion* **10**, no. 1, 54–64 (2010). https://doi.org/10.1037/a0018438.

Rooks, J. D. et al. "We Are Talking About Practice": The Influence of Mindfulness vs. Relaxation Training on Athletes' Attention and Well-Being over High-Demand Intervals. *Journal of Cognitive Enhancement* **1**, no. 2, 141–53 (2017). https://doi.org/10.1007/s41465-017-0016–5.

Chapter 1—Attention Is Your Superpower

24 *brain imaging research shows that this mental rehearsal activates the motor cortex similar to the way actual physical movement does*: Slimani, M. et al. Effects of Mental Imagery on Muscular Strength in Healthy and Patient Participants: A Systematic Review. *Journal of Sports Science & Medicine* **15**, no. 3, 434–50 (2016). https://pubmed.ncbi.nlm.nih.gov/27803622.

26 *There's a famous study on attention that goes like this*: There have been many studies done on inattentional blindness, akin to the famous "dancing gorilla" study. Simons, D. J., and Chabris, C. F. Gorillas in Our Midst: Sustained Inattentional Blindness for Dynamic Events. *Perception* **28**, no. 9, 1059–74 (1999). https://doi.org/10.1068/p281059.

28 *How much of your brain do you think is devoted to vision?*: Hagen, S. The Mind's Eye. *Rochester Review* **74**, no. 4, 32–37 (2012).

31 *certain neurodegenerative diseases that impair cognition, movement, vision, and more—neurons lose their clear marching orders and stop coordinating the way they're supposed to*: There is growing evidence of not only impaired structural connectivity found postmortem but also impaired resting state functional activity and connectivity indexed with fMRI in diseases such as Parkinson's (van Eimeren et al., 2009), Alzheimer's (Greicius et al., 2004), and Huntington's (Werner et al., 2014).

van Eimeren, T. et al. Dysfunction of the Default Mode Network in Parkinson Disease: A Functional Magnetic Resonance Imaging Study. *JAMA Neurology* **66**, no. 7, 877–83 (2009). https://doi.org/10.1001/archneurol.2009.97.

Greicius, M. D. et al. Default-Mode Network Activity Distinguishes Alzheimer's Disease from Healthy Aging: Evidence from Functional MRI. *Proceedings of the National Academy of Sciences of the United States of America* **101**, no. 13, 4637–42 (2004). https://doi.org/10.1073/pnas.0308627101.

Werner, C. J. et al. Altered Resting-State Connectivity in Huntington's Disease. *Human Brain Mapping* **35**, no. 6, 2582–93 (2014). https://doi.org/10.1002/hbm.22351.

32 *if I showed you two faces at the same time, the N170 would suddenly drop to being smaller in amplitude*: I am referring to the well-established phenomenon of competitive interactions among visual stimuli for neural representation, especially when these stimuli recruit a common population of neurons (Desimone and Duncan, 1995). This phenomenon is observed with EEG recordings, such as the N170 component in humans (Jacques and Rossion, 2004) as well as in single-unit studies in nonhuman primates (Rolls and Tovee, 1995).

Desimone, R., and Duncan, J. Neural Mechanisms of Selective Visual Attention. *Annual Review of Neuroscience* **18**, 193–222 (1995). https://doi.org/10.1146/annurev.ne.18.030195.001205.

Jacques, C., and Rossion, B. Concurrent Processing Reveals Competition Between Visual Representations of Faces. *Neuroreport* **15**, no. 15, 2417–21 (2004). https://doi.org/10.1097/00001756–200410250–00023.

Rolls, E. T., and Tovee, M. J. The Responses of Single Neurons in the Temporal Visual Cortical Areas of the Macaque When More Than One Stimulus Is Present in the Receptive Field. *Experimental Brain Research* **103**, 409–20 (1995). https://doi.org/10.1007/BF00241500.

33 *There are actually three subsystems that work together to allow us to fluidly and successfully function in our complex world*: Petersen, S. E., and M. I. Posner. The Attention System of the Human Brain: 20 Years After. *Annual Review of Neuroscience* **35**, 73–89 (2012). https://doi.org/10.1146/annurev-neuro-062111–150525.

38 *Attention and working memory work together*: Unsworth, N. et al. Are Individual Differences in Attention Control Related to Working Memory Capacity? A Latent Variable Mega-Analysis. *Journal of Experimental Psychology General* **38**, no. 6, 1765–72 (2020). https://doi.org/10.1037/xge0001000.

39 *Attention and working memory form not only the current contents of our conscious experience, but also our ability to* use *that information as we maneuver through life*: LeDoux, J. E., and Brown, R. A Higher-Order Theory of Emotional Consciousness. *Proceedings of the National Academy of Sciences of the United States of America* **114**, no. 10, E2016–E2025 (2017). https://doi.org/10.1073/pnas.1619316114.

Baddeley, A. The Episodic Buffer: A New Component of Working Memory? *Trends in Cognitive Sciences* **4**, no. 11, 417–23 (2000). https://doi.org/https://doi.org/10.1016/S1364–6613(00)01538–2.

39 *heart pumps* two thousand *gallons of blood per day*: "Facts About Your Heart," MetLife AIG (accessed September 10, 2020). https://tcs-ksa.com/en/metlife/facts-about-your-heart.php.

40 *In a variant of the experiment, we showed the same face/scene images. But every now and then, we'd flicker a different image on the screen: a negative image, something violent or upsetting*: In Paczynski et al. (2015), we examined the consequences of negative versus neutral distraction on attention, and found that the presentation of irrelevant negative images reduced the N170 attention effect. It is important to note that there is a well-established "negativity bias" wherein negative information has stronger effects (relative to equally extreme and arousing positive information) on a broad range of functions, such as attention, perception, and memory; motivation; and decision making (see Norris, 2019 for a recent review). In addition to negative external stimuli capturing attention, as proposed to have occurred in Paczynski et al. (2015), there is growing evidence that negative, more so than positive or neutral, content that is internally generated (i.e., negatively valanced memories and thoughts, negative mind-wandering) captures attention to a greater degree. And there is mounting evidence that negatively valanced mind-wandering impairs performance on tasks of attention and working memory (Banks et al., 2016).

Paczynski, M. et al. Brief Exposure to Aversive Stimuli Impairs Visual Selective Attention. *Journal of Cognitive Neuroscience* 27, no. 6, 1172–9 (2015). https://doi.org/10.1162/jocn_a_00768.

Norris, C. J. The Negativity Bias, Revisited: Evidence from Neuroscience Measures and an Individual Differences Approach. *Social Neuroscience* 16 (2019). https://doi.org/10.1080/17470919.2019.1696225.

Banks, J. B. et al. Examining the Role of Emotional Valence of Mind Wandering: All Mind Wandering Is Not Equal. *Consciousness and Cognition* 43, 167–76 (2016). https://doi.org/10.1016/j.concog.2016.06.003.

Chapter 2— . . . But There's Kryptonite

45 *The neuroscience literature points to three main factors that determine when our attention is deployed*: Theeuwes, J. Goal-Driven, Stimulus-Driven, and History-Driven Selection. *Current Opinion in Psychology* **29**, 97–101 (2019). https://doi.org/10.1016/j.copsyc.2018.12.024.

47 *Take a look at the graph*: In addition to the inverted U pattern of correspondence between performance and stress described initially by Yerkes and Dodson (1908; also see Teigen, 1994) and many other studies since, there is recent evidence as reviewed by Qin et al. (2009) that the precise levels of certain stress-related neurotransmitters, such as norepinephrine (NE), that drive activity in brain regions such as the locus coeruleus (LC) show an inverted U pattern related to performance. Optimal performance is associated with NE levels that result in an intermediate level of LC activity. But when NE levels lead to LC hypoactivity and hyperactivity, performance is impaired. The point here is that it is not that stress is bad or good, but that the consequences are tied to the amount of stress. Distress, as opposed to eustress, is often shorthanded as stress. Tasks that demonstrate this stress-related inverted U pattern are those that require effortful engagement of attention and working memory for successful task performance.

Yerkes, R. M., and Dodson, J. D. The Relation of Strength of Stimulus to Rapidity of Habitat-Formation. *Journal of Comparative Neurology and Psychology* **18**, 459–82 (1908). https://doi.org/10.1002/cne.920180503.

Teigen, K. H. Yerkes-Dodson: A Law for All Seasons. *Theory Psychology* **4**, 525 (1994). https://doi.org/10.1177/0959354394044004.

Qin, S. et al. Acute Psychological Stress Reduces Working Memory-Related Activity in the Dorsolateral Prefrontal Cortex. *Biological Psychiatry* **66**, no. 1, 25–32 (2009). https://doi.org/10.1016/j.biopsych.2009.03.006.

49 *Performance is always worse—lower accuracy, slower and more variable responses—after the negative mood induction*: This is describing performance on a task of sustained attention (Smallwood et al., 2009). Note that the relationship between attention, working memory, and mood has been examined using a variety of tasks and a variety of methods for probing mood and affective distraction. Negative distractors presented during the experiment (e.g., Witkin et al., 2020; Garrison and Schmeichel, 2018) as well as dispositional and disordered negative mood are associated with impaired performance on tasks of attention and working memory (Eysenck et al., 2007; Gotlib and Joormann, 2010). See also Schmeichel and Tang (2015) and Mitchell and Phillips (2007).

Smallwood, J. et al. Shifting Moods, Wandering Minds: Negative Moods Lead the Mind to Wander. *Emotion* **9**, no. 2, 271–76 (2009). https://doi.org/10.1037/a0014855.

Witkin, J. et al. Dynamic Adjustments in Working Memory in the Face of Affective Interference. *Memory & Cognition* **48**, 16–31 (2020). https://doi.org/10.3758/s13421-019-00958-w.

Garrison, K. E., and Schmeichel, B. J. Effects of Emotional Content on Working Memory Capacity. *Cognition and Emotion* **33**, no. 2, 370–77 (2018). https://doi.org/10.1080/02699931.2018.1438989.

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50 *If you feel threatened all the time, you aren't going to be able to engage deeply in any other task or experience*: There is growing evidence that threat-related information can capture and hold attention (Koster et al., 2004) and can perturb working memory (Schmader and Johns, 2003), which may impair ongoing task performance (Shih et al., 1999).

Koster, E. H. W. et al. Does Imminent Threat Capture and Hold Attention? *Emotion* **4**, no. 3, 312–17 (2004). https://doi.org/10.1037/1528–3542.4.3.312.

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50 *they haven't changed in thirty-five thousand years*: Neubauer, S. The Evolution of Modern Human Brain Shape. *Science Advances* **4**, no. 1 (2018). https://doi.org/10.1126/sciadv.aao5961.

51 *A study on Asian undergraduate women played two common stereotypes against each other*: Gibson, C. E. et al. A Replication Attempt of Stereotype Susceptibility: Identity Salience and Shifts in Quantitative Performance. *Social Psychology* **45**, no. 3, 194–98 (2014). http://dx.doi.org/10.1027/1864–9335/a000184.

54 *Many things leaders deal with—high-cognitive demands, evaluative pressure, tense social interactions, uncertainty—are known to degrade attention, as well*: Beyond stress, threat, and poor mood, many factors impair performance on tasks of attention and working memory. Blasiman, R. N., and Was, C. A. Why Is Working Memory Performance Unstable? A Review of 21 Factors. *Europe's Journal of Psychology* **14**, no. 1, 188–231 (2018). https://doi.org/10.5964/ejop.v14i1.1472.

54 *In a recent study, participants were told that they* might *have to give a speech after completing an attentionally demanding task that would take several minutes*: Alquist, J. L. et al. What You Don't Know Can Hurt You: Uncertainty Impairs Executive Function. *Frontiers in Psychology* **11**, 576001 (2020). https://doi.org/10.3389/fpsyg.2020.576001.

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58 *Your job is to say the color of the ink for each cluster of letters, as quickly as you can*: Stroop, J. R. Studies of Interference in Serial Verbal Reactions. *Journal of Experimental Psychology* **18**, no. 6, 643–62 (1935). https://doi.org/10.1037/h0054651.

59 *Responses are faster and more accurate for high-conflict trials that follow other high-conflict trials versus those that follow low-conflict trials—which sounds like a good thing*: The pattern of better performance after a high- vs. low-conflict trial is referred to as the conflict adaptation effect. It is proposed to result from the dynamic upregulation of cognitive control resources elicited by high-conflict as

well as other high-cognitive demands, such as working memory load and distractor interference.

Ullsperger, M. et al. The Conflict Adaptation Effect: It's Not Just Priming. *Cognitive, Affective, & Behavioral Neuroscience* **5,** 467–72 (2005). https://doi.org/10.3758/CABN.5.4.467.

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59 *challenging situations are often "conflict states"*: These different mind states are aligned with Buddhist descriptions of the Five Hindrances. Wallace, B. A. *The Attention Revolution: Unlocking the Power of the Focused Mind* (Boston: Wisdom Publications, 2006).

61 *don't think about a polar bear*: "Try to pose for yourself this task: not to think of a polar bear, and you will see that the cursed thing will come to mind every minute" ("Winter Notes on Summer Impressions," Fyodor Dostoevsky, 1863). This quote motivated a classic study that found that there was a paradoxical increase in the frequency of a thought that was to be suppressed (Wegner et al., 1987; see also Winerman, 2011; and Rassin et al., 2000). There is growing evidence that thought suppression and expressive suppression, which refers to the effortful control of automatic emotional responses, impair working memory (Franchow and Suchy, 2015) and result in poor psychological health outcomes (Gross and John, 2003).

Wegner, D. M. et al. Paradoxical Effects of Thought Suppression. *Journal of Personality and Social Psychology* **53**, no. 1, 5–13 (1987). https://doi.org/10.1037//0022–3514.53.1.5.

Winerman, L. Suppressing the "White Bears." *American Psychological Association* **42**, no. 9, 44 (2011). https://www.apa.org/monitor/2011/10/unwanted-thoughts.

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Chapter 3—Push-ups for the Mind

65 *researchers ran a study comparing the brains of bus drivers with those of cab drivers*: Maguire, E. A. et al. London Taxi Drivers and Bus Drivers: A Structural MRI and Neuropsychological Analysis. *Hippocampus* **16**, no. 12, 1091–1101 (2006). https://doi.org/10.1002/hipo.20233.

67 *fMRI illuminates the ongoing levels of oxygenated blood in different parts of the brain over time*: Fundamentally, brain functions occur via electrochemical processes, specifically those that occur during the firing of neurons. fMRI is not indexing electrical activity in the brain but rather the increase in blood flow that accompanies this activity. As such, fMRI is an indirect measure of neural activity.

de Haan, M., and Thomas, K. M. Applications of ERP and fMRI Techniques to Developmental Science. *Developmental Science* **5**, no. 3, 335–43 (2002). https://doi.org/10.1111/1467–7687.00373.

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Parong, J., and Mayer, R. E. Cognitive Consequences of Playing Brain-Training Games in Immersive Virtual Reality. *Applied Cognitive Psychology* **34**, no. 1, 29–38 (2020). https://doi.org/10.1002/acp.3582.
A Consensus on the Brain Training Industry from the Scientific Community. Max Planck Institute for Human Development and Stanford Center on Longevity. News release (October 20, 2014). https://longevity.stanford.edu/a-consensus-on-the-brain-training-industry-from-the-scientific-community-2/.
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75 *after the retreat, the meditators only mistakenly pressed the space bar* 30 *percent of the time*: Witkin, J. et al. Mindfulness Training Influences Sustained Attention: Attentional Benefits as a Function of Training Intensity. Poster presented at the International Symposium for Contemplative Research, Phoenix, Arizona (2018).

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77 *intercepted the University of Miami football team*: Rooks, J. D. et al. "We Are Talking About Practice": The Influence of Mindfulness vs. Relaxation Training on Athletes' Attention and Well-Being over High-Demand Intervals. *Journal of Cognitive Enhancement* **1**, no. 2, 141–53 (2017). https://doi.org/10.1007/s41465-017-0016–5.

78 *something we'd discovered about attention and high-demand periods: everybody degrades*: We have found a pattern of performance decline over high-stress intervals in a wide range of groups, from undergraduates over the academic semester (Morrison et al., 2014) and predeployment Marines over eight weeks of training (Jha et al., 2010) to incarcerated youth (Leonard et al., 2013) and football players over preseason training (Rooks et al., 2017).
Morrison, A. B. et al. Taming a Wandering Attention: Short-Form Mindfulness Training in Student Cohorts. *Frontiers in Human Neuroscience* **7**, 897 (2014). https://doi.org/10.3389/fnhum.2013.00897.
Jha, A. P. et al. Examining the Protective Effects of Mindfulness Training on Working Memory Capacity and Affective Experience. *Emotion* **10**, no. 1, 54–64 (2010). https://doi.org/10.1037/a0018438.
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Demand Intervals. *Journal of Cognitive Enhancement* **1**, no. 2, 141–53 (2017). https://doi.org/10.1007/s41465-017-0016–5.

79 *Many studies on mindfulness practice suggest that if you* accept and allow *instead of* resist: Lyndsay, E. K., and Creswell, J. D. Mindfulness, Acceptance, and Emotion Regulation: Perspectives from Monitor and Acceptance Theory (MAT). *Current Opinion in Psychology* **28**, 120–5 (2019). https://doi.org/10.1007/s41465-017-0016–5.

Chapter 4—Find Your Focus

93 *A recent survey of social media use in the workplace reported that while it can help provide a "mental break," fifty-six percent of employees said it distracts them from the work they need to do*: Lampe, C., and Ellison, N. Social Media and the Workplace. Pew Research Center, June 22, 2016. https://www.pewresearch.org/internet/2016/06/22/social-media-and-the-workplace/.

93 *We conducted a study with undergraduate students at the University of Miami*: Cameron, L. et al. Mind Wandering Impairs Textbook Reading Comprehension and Retention. Poster presented at the Cognitive Neuroscience Society Annual Meeting, Boston, Massachusetts (April 2014).

94 *Other experiments have found the same thing with easier parameters*: See, for example, Zanesco, A. P. et al. Meditation Training Influences Mind Wandering and Mindless Reading. *Psychology of Consciousness: Theory, Research, and Practice* **3**, no. 1, 12–33 (2016). https://doi.org/10.1037/cns0000082.

94 *people fail to immediately notice that the words are meaningless thirty percent of the time . . . before they realize the text they're reading is actually gibberish*: Smallwood, J. et al. The Lights Are On but No One's Home: Meta-Awareness and the Decoupling of Attention When the Mind Wanders. *Psychonomic Bulletin & Review* **14**, no. 3, 527–33 (2007). https://doi.org/10.3758/BF03194102.

95 *People cannot hold their focus, no matter what. Not if they are paid. Not if their task is solely to enjoy an activity. Not even if the consequences for losing focus are disastrous*: Esterman, M. et al. In the Zone or Zoning Out? Tracking Behavioral and Neural Fluctuations During Sustained Attention. *Cerebral Cortex* **23**, no. 11, 2712–23 (2013). https://doi.org/10.1093/cercor/bhs261.

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Wilson, T. D. et al. Just Think: The Challenges of the Disengaged Mind. *Science* **345**, no. 6192, 75–7 (2014). https://doi.org/10.1126/science.1250830.

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98 load theory: Lavie, N. et al. Load Theory of Selective Attention and Cognitive Control. *Journal of Experimental Psychology* **133**, no. 3, 339–54 (2004). https://doi.org/10.1037/0096–3445.133.3.339.

98 *and the* vigilance decrement: The vigilance decrement, also referred to as time-on-task effects, is the behavioral pattern of reduced performance with longer periods of engagement in a task. There is debate regarding the causes of this phenomenon, from resource depletion to attentional cycling, and consideration of opportunity costs. See Rubinstein (2020) for discussion as well as Davies and Parasuraman (1982).

Rubinstein, J. S. Divergent Response-Time Patterns in Vigilance Decrement Tasks. *Journal of Experimental Psychology: Human Perception and Performance* **46**, no. 10, 1058–76 (2020). https://doi.org/10.1037/xhp0000813.

Davies, D. R., and Parasuraman, R. *The Psychology of Vigilance* (London: Academic Press, 1982).

99 *Participants sit at a computer screen that shows them a different face every half second*: Denkova, E. et al. Attenuated Face Processing During Mind Wandering. *Journal of Cognitive Neuroscience* **30**, no. 11, 1691–1703 (2018). https://doi.org/10.1162/jocn_a_01312.

102 *You experience "perceptual decoupling"*: Schooler, J. W. et al. Meta-Awareness, Perceptual Decoupling and the Wandering Mind. *Trends in Cognitive Sciences* **15**, no. 7, 319–26 (2011). https://doi.org/10.1016/j.tics.2011.05.006.

103 *Mind-wandering, it turns out, potentially happens at the same rate when someone's sitting on the couch reading a magazine as when they're performing brain surgery*: While mind-wandering can occur in many real-world contexts, real-world rates of mind-wandering and performance- and laboratory-based rates may not always be aligned across individuals (Kane et al., 2017) and factors such as self-imposed effort to concentrate, task demands, and other individual differences may result in a misalignment in mind-wandering and working memory in real-life vs. laboratory contexts. Kane, M. J. et al. For Whom the Mind Wanders, and When, Varies Across Laboratory and Daily-Life Settings. *Psychological Science* 28, no. 9 1271–1289 (2017). https://doi.org/10.11 https://doi.org/10.1177/0956797617706086.

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103 *the moment afterward is going to be riddled with a little bit of negativity*: Killingsworth, M. A., and Gilbert, D. T. A Wandering Mind Is an Unhappy Mind. *Science* **330**, no. 6006, 932 (2010). https://doi.org/10.1126/science.1192439.

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108 *Mind-wandering may have ultimately been selected over the course of human evolution to maximize* opportunity costs: Ward, A. F., and Wegner, D. M. Mind-Blanking: When the Mind Goes Away. *Frontiers in Psychology* **4**, 650 (2013). https://doi.org/10.3389/fpsyg.2013.00650.

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120 *Multitasking—or, more specifically,* task switching: Rubinstein, J. S. et al. Executive Control of Cognitive Processes in Task Switching. *Journal of Experimental Psychology: Human Perception and Performance* **27**, no, 4, 763–97 (2001). https://doi.org/10.1037/0096–1523.27.4.763.

122 *But also:* monotask as much as possible: Levy, D. M. et al. The Effects of Mindfulness Meditation Training on Multitasking in a High-Stress Information Environment. *Proceedings of Graphics Interface*, 45–52 (2012). https://dl.acm.org/doi/10.5555/2305276.2305285.

123 *You'll miss less, make fewer errors, and (science suggests!) stay happier*: Etkin, J., and Mogilner, C. Does Variety Among Activities Increase Happiness? *Journal of Consumer Research* **43**, no. 2, 210–29 (2016). https://doi.org/10.1093/jcr/ucw021.

Chapter 5—Stay In *Play*

128 *topic of* working memory: Working memory is a cognitive system that allows for the short-term maintenance of information in a highly accessible state and the manipulation of this information in the service of goals. There are several prominent models of working memory. For example, whereas Baddeley's model (Baddeley 2010) emphasizes the component structure of working memory, Engle's model (Engle and Kane, 2004) emphasizes an individual differences approach and the role of executive control (akin to the central executive system of attention) in accounting for individual differences in working memory capacity.
Baddeley, A. Working Memory. *Current Biology* **20**, no. 4, R136–R140 (2010). https://doi.org/10.1016/j.cub.2009.12.014.
Engle, R. W., and Kane, M. J. Executive Attention, Working Memory Capacity, and a Two-Factor Theory of Cognitive Control. In B. Ross (ed.), *The Psychology of Learning and Motivation* 44, 145–99 (2004).

128 *Directing the flashlight of your attention to the contents of your working memory essentially "refreshes" that content*: Raye, C. L. et al. Refreshing: A Minimal Executive Function. *Cortex* **43**, no. 1, 134–45 (2007). https://doi.org/10.1016/s0010–9452(08)70451–9.

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of the Mind. *Psychological Bulletin* **130**, no. 4, 553–73 (2004). https://doi.org/10.1037/0033–2909.130.4.553.

135 *And it's where you experience emotion*:
Mikels, J. A., and Reuter-Lorenz, P. A. Affective Working Memory: An Integrative Psychological Construct. *Perspectives on Psychological Science* **14**, no. 4, 543–59 (2019). https://doi.org/https://doi.org/10.1177/1745691619837597.
LeDoux, J. E., and Brown, R. A Higher-Order Theory of Emotional Consciousness. *Proceedings of the National Academy of Sciences of the United States of America* **114**, no. 10, E2016–E2025 (2017). https://doi.org/10.1073/pnas.1619316114.

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tested it out in a clever experiment: Mrazek, M. D. et al. The Role of Mind-Wandering in Measurements of General Aptitude. *Journal of Experimental Psychology General* **141**, no. 4, 788–98 (2012). https://doi.org/10.1037/a0027968.

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147 *But this time, we put the brain cap on our participants while they did the experiment, and we only gave them one face to remember*: Sreenivasan, K. K. et al. Temporal Characteristics of Top-Down Modulations During Working Memory Maintenance: An Event-Related Potential Study of the N170 Component. *Journal of Cognitive Neuroscience* **19**, no. 11, 1836–44 (2017). https://doi.org/10.1162/jocn.2007.19.11.1836.

154 *They are able to allow the ink to fade when it's appropriate for it to do so, selectively*: Visual working memory capacity is tied to the efficiency with which distractors can be filtered.

Vogel, E. K. et al. The Time Course of Consolidation in Visual Working Memory. *Journal of Experimental Psychology: Human Perception and Performance* **32**, no. 6, 1436–51 (2006). https://doi.org/10.1037/0096–1523.32.6.1436.

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Chapter 6—Press *Record*

163 *memory for experiences, involves* selective encoding of only those aspects of experience that were most attended to and held in working memory: Recent studies suggest that working memory capacity is moderately to strongly related with measures of long-term memory (Mogle et al., 2008; Unsworth et al, 2009). Working memory may serve as a scratch space for long-term memory where information can be manipulated (that is, reordered, organized, integrated; see Blumenfeld and Ranganath, 2006) for more efficient storage. Yet, there is still active debate regarding the dissociable neural systems that may or may not uniquely have a role in working memory and long-term memory (Ranganath and Blumenfeld, 2005).

Mogle, J. A. et al. What's So Special About Working Memory? An Examination of the Relationships Among Working Memory, Secondary Memory, and Fluid Intelligence. *Psychological Science* **19**, 1071–7 (2008). https://doi.org/10.1111/j.1467–9280.2008.02202.x.

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memory: Schroots, J. J. F. et al. Autobiographical Memory from a Life Span Perspective. *International Journal of Aging and Human Development* **58**, no. 1, 69–85 (2004). https://doi.org/10.2190/7A1A-8HCE-0FD9–7CTX.

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175 *Those attention-grabbing thoughts have as their raw materials long-term memory traces*: Andrews-Hanna, J. R. et al. Dynamic Regulation of Internal Experience: Mechanisms of Therapeutic Change. In Lane, R. D., and Nadel, L., *Neuroscience of Enduring Change: Implications for Psychotherapy* (New York: Oxford University Press, 2020), 89–131. https://doi.org/10.1093/oso/9780190881511.003.0005.

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Geraerts, E. et al. Traumatic Memories of War Veterans: Not So Special After All. *Consciousness and Cognition* **16**, no. 1, 170–7 (2007). https://doi.org/10.1016/j.concog.2006.02.005.

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Stress Disorder: A Review of the Treatment Literature and Neurobiological Evidence. *Journal of Psychiatry & Neuroscience* **43**, no. 1, 7–25 (2018). https://doi.org/10.1503/jpn.170021.

Chapter 7—Drop the Story

188 *Confirmation bias is common—it happens when people essentially "see what they expect to see," discounting any information that doesn't line up with their expectation*: Kappes, A. et al. Confirmation Bias in the Utilization of Others' Opinion Strength. *Nature Neuroscience* **23**, no. 1, 130–7 (2020). https://doi.org/10.1038/s41593-019-0549–2.

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Jha, A. P. et al. Bolstering Cognitive Resilience via Train-the-Trainer Delivery of Mindfulness Training in Applied High-Demand Settings. *Mindfulness* **11**, 683–97 (2020). https://doi.org/10.1007/s12671-019-01284–7.

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Chapter 8—Go Big

215 *Simulations create mental models that lead to decisions*: Endsley, M. R. The Divergence of Objective and Subjective Situation Awareness: A Meta-Analysis. *Journal of Cognitive Engineering and Decision Making* **14**, no. 1, 34–53 (2020). https://doi.org/10/ggqfzd.

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Journal of Experimental Psychology: Learning, Memory, and Cognition **35**, no. 1, 196–204 (2009). 218

218 *Meta-awareness is the ability to take explicit note of and monitor the current contents or processes of your conscious experience*: Schooler, J. W. et al. Meta-Awareness, Perceptual Decoupling and the Wandering Mind. *Trends in Cognitive Sciences* **15**, no. 7, 319–26 (2011). https://doi.org/10.1016/j.tics.2011.05.006.

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222 *as mind-wandering was going up, meta-awareness was going down. We are mind-wandering more and more over time, and growing less and less able to catch ourselves doing it*: Krimsky, M. et al. The Influence of Time on Task on Mind Wandering and Visual Working Memory. *Cognition* **69**, 84–90 (2017). https://doi.org/10.1016/j.cognition.2017.08.006.

223 *But if the task demands suddenly rise, and performance starts slipping, attentional resources will be diverted back to the task-at-hand. Your own mind cues you*: During challenging activities requiring concentration and effort, higher-working memory capacity (WMC) subjects maintained on-task thoughts better, and mind-wandered less, than did lower-WMC subjects. Kane, M. J. et al. For Whom the Mind Wanders, and When: An Experience-Sampling Study of Working Memory and Executive Control in Daily Life. *Psychological Science* **18**, no. 7, 614–21 (2007). https://doi.org/10.1111/j.1467–9280.2007.01948.x.

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Sciences of the United States of America **108**, no. 50, 20254–9 (2011). https://doi.org/10.1073/pnas.1112029108.

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228 *The force applied is minute but the results enormous*: Sun Tzu. *The Art of War* (Bridgewater, MA: World Publications, 2007), 95.

234 *There is a concept in Buddhism called the "Second Arrow." It comes from a famous parable*: Bhikkhu, T. (trans.). Sallatha Sutta: The Arrow. Access to Insight (BCBS edition), November 30, 2013, https://www.accesstoinsight.org/tipitaka/sn/sn36/sn36.006.than.html.

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Chapter 9—Get Connected

240 *Loneliness and social isolation are risk factors for poor health as well as accelerated mortality*: Perissinotto, C. M. et al. Loneliness in Older Persons: A Predictor of Functional Decline and Death. *Archives of Internal Medicine* **172**, no. 14, 1078–984 (2012). https://doi.org/10.1001/archinternmed.2012.1993.

240 *Conversations rely on* shared mental models:

Alfred, K. L. et al. Mental Models Use Common Neural Spatial Structure for Spatial and Abstract Content. *Communications Biology* **3**, no. 17 (2020). https://doi.org/10.1038/s42003-019-0740–8.

Jonker, C. M. et al. Shared Mental Models: A Conceptual Analysis. *Lecture Notes in Computer Science* **6541**, 132–51 (2011). https://doi.org/10.1007/978-3-642-21268-0_8.

242 *Sadly, a recent study examining parental behavior and working memory capacity found that parents with lower (vs. higher) working memory capacity were more likely to engage in verbally or emotionally abusive behavior toward their children*: Deater-Deckard, K. et al. Maternal Working Memory and Reactive Negativity in Parenting. *Psychological Sciences* **21**, no. 1, 75–9 (2010). https://doi.org/10.1177/0956797609354073

245 *While you're actively suppressing, it leaves less cognitive bandwidth to do much else*:

Franchow, E. I., and Suchy, Y. Naturally-Occurring Expressive Suppression in Daily Life Depletes Executive Functioning. *Emotion* **15**, no. 1, 78–89 (2015). https://doi.org/10.1037/emo0000013.

Brewin, C. R., and Beaton, A. Thought Suppression, Intelligence, and Working Memory Capacity. *Behaviour Research and Therapy* **40**, no. 8, 923–30 (2002). https://doi.org/10.1016/S0005-7967(01)00127-9.

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Dahl, C. J. et al. The Plasticity of Well-Being: A Training-Based Framework for the Cultivation of Human Flourishing. *Proceedings of the National Academy of*

Sciences of the United States of America **117**, no. 51, 32197–206 (2020). https://doi.org/10.1073/pnas.2014859117.

Brandmeyer, T., and Delorme, A. Meditation and the Wandering Mind: A Theoretical Framework of Underlying Neurocognitive Mechanisms. *Perspectives on Psychological Science* **16**, no. 1, 39–66 (2021). https://doi.org/10.1177/1745691620917340.

261 *in those who briefly practiced loving-kindness meditation (versus a comparison group that did not), there was a reduction in implicit racial bias*: Kang, Y. et al. The Nondiscriminating Heart: Lovingkindness Meditation Training Decreases Implicit Intergroup Bias. *Journal of Experimental Psychology: General* **143**, no. 3, 1306–13 (2021). https://doi.org/10.1007/s11031-015-9514-x.

Chapter 10—Feel the Burn

264 *Cooper uncovered a strong correlation between aerobic exercise and heart health*: Cooper, K. H. The History of Aerobics (50 Years and Still Counting). *Research Quarterly for Exercise and Sport* **89**, no. 2, 129–34 (2018). https://doi.org/10.1080/02701367.2018.1452469.

264 *And when it comes to better attention*: Prakash, R. S. et al. Mindfulness and Attention: Current State-of-Affairs and Future Considerations. *Journal of Cognitive Enhancement* **4**, 340–67 (2020). https://doi.org/10.1007/s41465-019-00144–5.

265 *the brain networks that are tied to focusing and managing attention, noticing and monitoring internal and external events, and mind-wandering are all activated*: Hasenkamp, W. et al. Mind Wandering and Attention During Focused Meditation: A Fine-Grained Temporal Analysis of Fluctuating Cognitive States. *NeuroImage* **59**, no. 1, 750–60 (2012). https://doi.org/10.1016/j.neuroimage.2011.07.008

265 *we see changes in brain structures and brain activity that correspond with these improvements over time*:

Brandmeyer, T., and Delorme, A. Meditation and the Wandering Mind: A Theoretical Framework of Underlying Neurocognitive Mechanisms. *Perspectives on Psychological Science* **16**, no. 1, 39–66 (2021). https://doi.org/10.1177/1745691620917340.

Fox, K. C. R. et al A. Functional Neuroanatomy of Meditation: A Review and Meta-Analysis of 78 Functional Neuroimaging Investigations. *Neuroscience & Biobehavioral Reviews* **65**, 208–28 (2016). https://doi.org/10.1016/j.neubiorev.2016.03.021.

266 *they'd shown improvements in sustained attention and alerting. They also had better working memory encoding, reduced mind-wandering, and greater meta-awareness*: There are several studies from other research groups (e.g., Lutz et al., 2008, for review; Zanesco et al., 2013; Zanesco et al., 2016) reporting benefits on attention as a function of participation in longer-term retreats. The specific benefits on SART performance (Witkin et al., 2018) include improvements in sustained attention performance, reductions in self-reported mind-wandering, increases in meta-awareness, improvements in alerting (Jha et al., 2007), and improvements in working memory encoding (van Vugt and Jha, 2011). These were all studies conducted at the Shambhala Mountain Center. The study by Witkin et al. (2018) was conducted in collaboration with Naropa University with my colleague Jane Carpenter Cohn. In addition to studies examining cognitive effects of mindfulness retreats, many studies have been conducted examining other benefits (McClintock et al., 2019).

Lutz, A. et al. Attention Regulation and Monitoring in Meditation. *Trends in Cognitive Sciences* **12**, no. 4, 163–9 (2008). https://doi.org/10.1016/j.tics.2008.01.005.

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Zanesco, A. P. et al. Meditation Training Influences Mind Wandering and Mindless Reading. *Psychology of Consciousness: Theory, Research, and Practice* **3**, no. 1, 12–33 (2016). https://doi.org/10.1037/cns0000082.

Witkin, J. et al. *Mindfulness Training Influences Sustained Attention: Attentional Benefits as a Function of Training Intensity*. Poster presented at the International Symposium for Contemplative Research, Phoenix, Arizona (2018).

Jha, A. P. et al. Mindfulness Training Modifies Subsystems of Attention. *Cognitive, Affective & Behavioral Neuroscience* **7**, no. 2, 109–19 (2007). https://doi.org/10.3758/CABN.7.2.109.

van Vugt, M., and Jha, A. P. Investigating the Impact of Mindfulness Meditation Training on Working Memory: A Mathematical Modeling Approach. *Cognitive, Affective & Behavioral Neuroscience* **11**, 344–53 (2011). https://doi.org/10.3758/s13415-011-0048–8.

McClintock, A. S. et al. The Effects of Mindfulness Retreats on the Psychological Health of Non-Clinical Adults: A Meta-Analysis. *Mindfulness* **10**, 1443–54 (2019). https://doi.org/10.1007/s12671-019-01123–9.

266 *That study with the Marines in West Palm Beach had shown a* dose-response effect *with mindfulness practice for attention, working memory, and mood*:

Jha, A. P. et al. Minds "At Attention": Mindfulness Training Curbs Attentional Lapses in Military Cohorts. *PLoS One* **10**, no. 2, 1–19 (2015). https://doi.org/10.1371/journal.pone.0116889.

Jha, A. P. et al. Examining the Protective Effects of Mindfulness Training on Working Memory Capacity and Affective Experience. *Emotion* **10**, no. 1, 54–64 (2010). https://doi.org/10.1037/a0018438.

268 *many more large-scale studies with military service members, military spouses, first responders, community leaders, and many other groups*:

Service Members:

Jha, A. P. et al. Bolstering Cognitive Resilience via Train-the-Trainer Delivery of Mindfulness Training in Applied High-Demand Settings. *Mindfulness* **11**, 683–97 (2020). https://doi.org/10.1007/s12671-019-01284–7.

Zanesco, A. P. et al. Mindfulness Training as Cognitive Training in High-Demand Cohorts: An Initial Study in Elite Military Servicemembers. In *Progress in Brain Research* **244**, 323–54 (2019). https://doi.org/10.1016/bs.pbr.2018.10.001.

Military Spouses:

Brudner, E. G. et al. The Influence of Training Program Duration on Cognitive Psychological Benefits of Mindfulness and Compassion Training in Military Spouses. Poster presented at the International Symposium for Contemplative Studies. San Diego, California (November 2016).

Firefighters:

Denkova, E. et al. Is Resilience Trainable? An Initial Study Comparing Mindfulness and Relaxation Training in Firefighters. *Psychiatry Research* **285**, 112794 (2020). https://doi.org/10.1016/j.psychres.2020.112794.

Community and Workplace Leaders:

Alessio, C. et al. Leading Mindfully: Examining the Effects of Short-Form Mindfulness Training on Leaders' Attention, Well-Being, and Workplace Satisfaction. Poster presented at The Mind & Life 2020 Contemplative Research Conference, online (November 2020).

Accountants:

Denkova, E. et al. Strengthening Attention with Mindfulness Training in Workplace Settings. In Siegel, D. J. and Solomon, M., *Mind, Consciousness, and Well-Being* (New York: W. W. Norton & Company, 2020), 1–22.

269 *than the mindfulness training, it appeared to be* actively depleting attention and working memory in these predeployment soldiers:
Jha, A. P. et al. Comparing Mindfulness and Positivity Trainings in High-Demand Cohorts. *Cognitive Therapy and Research* **44**, no. 2, 311–26 (2020). https://doi.org/10.1007/s10608-020-10076–6. We note that positivity training is known to have beneficial effects when offered in other contexts, typified by normative levels of distress and challenge, particularly those suffering from dysphoria.
Becker, E. S. et al. Always Approach the Bright Side of Life: A General Positivity Training Reduces Stress Reactions in Vulnerable Individuals. *Cognitive Therapy and Research* **40**, 57–71 (2016). https://doi.org/10.1007/s10608-015-9716–2.

270 *In the next study, we ran two simultaneous courses: both eight weeks long, both with thirty minutes of "homework" per day, both taught by the same trainer*: Jha, A. P. Short-Form Mindfulness Training Protects Against Working Memory Degradation Over High-Demand Intervals. *Journal of Cognitive Enhancement* **1**, 154–71 (2017). https://doi.org/10.1007/s41465-017-0035–2.

275 *this is what I want to encourage you to do: practice twelve minutes a day, five days a week*: To determine if there is a "minimum effective dose" of mindfulness training, we first needed to examine if dose matters. To do so, we examined if there are dose-response effects, which refer to patterns in which the magnitude of a response varies as a function of the dose of exposure to something. In our studies, the "dose" was the actual amount of time that healthy participants engaged in mindfulness training exercises outside of the formal time they spent in a training course with a qualified trainer. The "response" was their performance on our evaluation metrics of attention and working memory after (versus before) the formal training interval. We have observed dose-response effects on cognitive task performance in many of our studies in high-stress cohorts. Many other research teams have reported dose-response effects in noncognitive domains as well (Lloyd et al., 2018; Parsons et al., 2017). The benefits of mindfulness training are greater in those with more (versus less) practice engagement.

A key point about "dose" in studies of mindfulness training is that assigning participants a specific amount of practice time each day does not mean that they will adhere to these requirements. In fact, in our studies in high-stress cohorts, we have found that there is considerable variability in adherence to assigned practice. Learning this suggested that determining what a "minimum effective dose" is by experimentally prescribing dose (assigning subgroups of participants in the mindfulness training or comparison training conditions to different amounts of daily practice) was unlikely to be fruitful, since we would likely find variability in actual self-reported practice engagement in all the practice subgroups. Instead, we opted for a data emergent approach using the participants' self-reports of how much they actually practiced. Specifically, participants were median split into high-practice and low-practice subgroups based on their self-reported practice. We then statistically tested to see which of these two groups significantly differed from each other as well as from their respective active-training comparison or no-training control groups, which were also part of these studies.

In our initial studies (Jha et al., 2010; Jha et al., 2015), we assigned thirty minutes of practice every day for the entire eight-week training interval. Very few participants reported engaging in this dose. No significant differences were found when we compared the entire training group (which comprised those with low and high practice) to the no-training control group. But after parsing the training group into high- and low-practice subgroups, we found that the high-practice group's performance was significantly better than the low-practice and no-training control groups. The high-practice group in this study practiced an average of twelve minutes daily. We used this number to guide our next step. In our next

large-scale study (Rooks et al., 2017), we preset practice at twelve minutes a day for the duration of a four-week training interval (the guided practice recordings each lasted twelve minutes and participants were encouraged to complete the entire recording). Once again, there was variability, with some participants practicing only a few days per week, and some practicing more. And again, we did not find that the mindfulness training group as a whole significantly differed from the comparison group, which received relaxation training. We parsed each training group into high- and low-practice subgroups. We found that for those who received mindfulness training, performance was significantly better in the high-practice vs low-practice subgroup. The mindfulness high-practice group also performed significantly better than the relaxation high-practice group. The mindfulness high-practice group engaged in twelve minutes of practice, on average five days per week. In two follow-up studies (Zanesco et al., 2019; Jha et al., 2020), we constrained the practice requirements to five days a week instead of requiring them to practice every day throughout the entire training interval as our previous studies had required. In addition, we slightly increased the daily dose to fifteen minutes by providing fifteen-minute recordings (instead of twelve) because we were now relying on the trainers we had quickly trained instead of expert trainers. In both of these studies, participants largely adhered to the assigned practice, and the mindfulness training group as a whole performed significantly better than the no-training control group at the end of the training interval. These studies suggested that practicing for four to five days a week benefited cognitive performance.

Thus, collectively these studies suggest that a minimum effective dose for benefits to attention and working memory over high-demand intervals in healthy participants is twelve to fifteen minutes a day, five days a week. We acknowledge that many more studies are required to further explore this prescription and that these results may differ for other metrics and other types of groups. Nonetheless, through these series of studies, we seem to have landed upon a recipe that many participants are willing to adhere to. In addition, it opens up many fascinating new lines of research regarding factors (such as personality, prior life experiences, current life demands, and so on) that may determine how much time people are willing to practice. For example, in our initial studies with Marines we found that those with openness as a personality trait and those who had been previously deployed were more willing to practice than others. And finally, it is critical to keep in mind that any research-informed prescription is based on statistics that rely on aggregate data such as averages, trends, and correlations. As such, it is entirely plausible that any one individual may experience beneficial effects of mindfulness training without conforming to this or other research-derived prescriptions.

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Rooks, J. D. et al. "We Are Talking About Practice": The Influence of Mindfulness vs. Relaxation Training on Athletes' Attention and Well-Being over High-Demand Intervals. *Journal of Cognitive Enhancement* **1**, no. 2, 141–53 (2017). https://doi.org/10.1007/s41465-017-0016–5.

Zanesco, A. P. et al. Mindfulness Training as Cognitive Training in High-Demand Cohorts: An Initial Study in Elite Military Servicemembers. In *Progress in Brain Research* **244**, 323–54 (2019). https://doi.org/10.1016/bs.pbr.2018.10.001.

Jha, A. P. et al. Bolstering Cognitive Resilience via Train-the-Trainer Delivery of Mindfulness Training in Applied High-Demand Settings. *Mindfulness* **11**, 683–97 (2020). https://doi.org/10.1007/s12671-019-01284–7.

275 *There are other programs out there incorporating mindfulness as part of a treatment plan for psychological disorders like depression, anxiety, and PTSD*: There are many resources on mindfulness-based stress reduction (Kabat-Zinn, 1990) and mindfulness-based cognitive therapy for stress and symptom reduction (Segal et al., 2002), as well as meta-analyses on the stress and health benefits of these programs (Goyal et al., 2014).

Kabat-Zinn, J. *Full Catastrophe Living: How to Cope with Stress, Pain and Illness Using Mindfulness Meditation* (New York: Bantam Dell, 1990).

Segal, Z. V. et al. *Mindfulness-Based Cognitive Therapy for Depression: A New Approach to Preventing Relapse* (New York: Guilford, 2002).

Goyal, M. et al. Meditation Programs for Psychological Stress and Well-Being: A Systematic Review and Meta-Analysis. *JAMA Internal Medicine* **174**, no. 3, 357–68 (2014). https://doi.org/10.1007/s41465-017-0016–5.

290 *One way to think about mindfulness practice, and its utility in moments like these*: Nila, K. et a. Mindfulness-Based Stress Reduction (MBSR) Enhances Distress Tolerance and Resilience Through Changes in Mindfulness. *Mental Health & Prevention* **4**, no. 1, 36–41 (2016). https://doi.org/10.1016/j.mhp.2016.01.001.

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303 *Like a bird's life, [the stream of consciousness] seems to be made [up]*: James, W. *Principles of Psychology* (vols. 1–2). (New York: Holt, 1890). 243.

304 *The instructions are informed by current science on behavior change: Start with extremely small goals, achieve them*: Fogg, B. J. *Tiny Habits: The Small Changes That Change Everything* (New York: Houghton Mifflin Harcourt, 2020). http://tinyhabits.com.

322 *Be calm to get calm*: Personal communication from Walt Piatt (October 4, 2018), conveying quote from Cynthia Piatt, referring to the need and value of emotionally regulating oneself, prior to requesting or requiring it of others.