"Insightful, charming, and deeply wise . . . too good to miss."
—Daniel Gilbert, author of *Stumbling on Happiness*

CLEARER

BETTER

How Successful People See the World

Emily Balcetis

CLEARER, CLOSER, BETTER

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Introduction

On a crisp Saturday morning one spring, in a borough of Berlin called Mitte, I sat alone at a bistro munching away on a carrot-beet scone in between sips of a cappuccino. Or at least I thought. I could read the German menu only slightly better than I could name the street on which I was renting an apartment for the month. Despite brunching solo—an endeavor considered so gauche back home that *The New York Times* had once decreed it shouldn't be done—I was having a marvelous time.

I was flipping through a copy of *New York* magazine and came upon an article about paint. While that might sound as enticing as watching it dry, the article was fascinating. You see, the author of the article focused his reporting on black. New Yorkers love it, I've learned, having lived in the city for about ten years, not only because of its ability to contrast starkly against any exposed sun-deprived skin but also because of its ability to mask the grime that the streets kick up onto you as you walk to work. However, the author was interested by a particular variant of black paint because it wasn't quite paint at all.

In the "Antenna" wing of the Science Museum in London, the

author explained, there sat a bronze bust of the BBC personality Marty Jopson. It was about six inches tall and an accurate enough likeness, especially in how light bounced off the dimples, the bushy eyebrows, and the handlebar mustache. Jopson was a props designer, inventor, and math hobbyist. He presented his scientific work on television for a while. On his show he asked, from behind safety goggles, whether an opera singer was capable of shattering a crystal wineglass with one powerful note. (She was.) With the help of the townspeople of Ashford, England, who lived on Butterside Road, he tested whether falling toast always landed buttered side down. (It mostly did.) Though the Marty Jopson bust was an unusual choice of subject matter, all in all there was nothing particularly remarkable about it.

Except for the nearly identical bust that sat beside it. When the two sculptures were viewed side by side, the second bust seemed to be only a silhouette, as if someone had taken a scalpel and cut a hole in space the exact shape and size of Jopson's head. You couldn't see the dimples or the mustache. There were no shadows. There were no contours. Had you been allowed to touch this bust, you would have felt all the texture of the face, the wrinkles on the forehead, and the hair on the chin. But to the viewer, all such detail seemed to have disappeared into a void. Or a black hole.

This second bust, like the first, was made of bronze, but it was cloaked with something special: Vantablack—the blackest black ever created.

Vantablack isn't actually a pigment. It is a substance that is grown by scientists directly on the metal surfaces it is intended to cover, and it has virtually no mass at all. Vantablack is a densely packed collection of ultra-thin carbon nanotubes, like the material that makes up the bodies of Formula One racing cars and the Enzo Ferrari. It is as dark as it is because it absorbs 99.965 percent of light that hits it straight-on. For comparison, the blackness of asphalt consumes only about 88 percent. For us to see something, we need light to hit an object *and* to bounce back. Otherwise, we're not going to see much of anything at all.

Vantablack has been used to coat the outsides of stealth jets. It has lined the insides of telescopes. And, just a few months before I read that article, scientists from Berlin Space Technologies—which was just a few train stops away from where I was sitting—had applied it to a microsatellite bound for outer space.

Recently, the famous British artist Sir Anish Kapoor had been granted exclusive rights to use one version of the product in his work, which includes the bust in the Science Museum. Kapoor explained that Vantablack is "blacker than anything you can imagine. So black you almost can't see it . . . Imagine a space that's so dark that as you walk in you lose all sense of where you are, what you are, and especially all sense of time."

He's hardly exaggerating. When we look at the bust, we lose all sense of dimensionality. What we see is not what's really there. It's an illusion. A trick of the eye.

For Kapoor, the gap between reality and perception was the key to transforming an otherwise unremarkable sculpture into a groundbreaking work of great artistic intrigue. What we actually see makes all the difference. Even—or especially—when what we see diverges from what's really there.

This book is about that "especially."

We think we see the world the way it actually is. We think that when we look at ourselves in the mirror, we see our face the same way others do. We believe that when we peer down the street in front of us, we know what we'll pass by on our journey. We are certain that when we scan the food on our plate, we see what it is we'll be eating. But none of this is always true. Instead, our visual experiences are often misrepresentations. We form an imperfect impression and our eager mind fills in the gaps, putting in place the missing pieces. We do this with the things we see even when they aren't shrouded in Vantablack. And, interestingly, this can happen without our awareness, both in everyday circumstances and when we're making some of the most important decisions of our lives.

Based on the research I and my colleagues have conducted, I

believe that we can take advantage of the fact that we do not see the world perfectly, accurately, or completely—as long as we know when and why it happens. By learning more about how our eyes work in conjunction with our brain, we can direct our perceptual experiences to help us see the world in ways that will help us overcome some of the biggest challenges we face when working toward our most important goals.

I'm a social psychologist and scientist at New York University, and I have been conducting research on perception and motivation for more than fifteen years. I've worked with some of the most accomplished scholars and amassed my own talented team. Together, we have conducted investigations, analyzed the data from experiments we've designed, and reviewed new reports emerging from labs all around the world on how people best pursue their goals, and what stands in their way.

Through this work, I have noted commonalities among the problems that people face when they set out on a personal quest to master some ambition. I have encountered these problems too. Just as having a medical degree doesn't protect a doctor from getting the sniffles, having a PhD in motivation science doesn't inoculate me from the challenges of meeting my own goals. But I happen to be uniquely positioned to know the scientific data on the problems that arise along the way, and what the solutions to these problems might be. As a result, I have discovered strategies that work to overcome the difficulties that challenge the likelihood of our own success. I've learned what works—and what doesn't—for myself and thousands of others who have been involved in my research.

What's interesting is that our discoveries align with the methods used by successful entrepreneurs, athletes, artists, and celebrities. Ample scientific data underscores the effectiveness of approaches that these incredible individuals take to surmounting some of their biggest obstacles. And their habits, routines, and practices, my research finds, can be distilled into four general strategies with far-reaching application.

In the chapters that follow, I explain how knowing when to **narrow our focus of attention** helps us to exercise more effectively, save more for retirement sooner, and find more time in our day to do what we really want to. Understanding how to **materialize** a goal, our steps, or our efforts improves the way we track our progress. Becoming aware of the power of **framing** can improve our ability to read others' emotions, negotiate better deals, improve the relationships we have with other people, and overcome a fear of public speaking. And **a wide bracket** reduces the allure of temptations, the appeal of multitasking, and the inclination to push on when changing course might be best.

We can think of these strategies as four different tools in a toolbox we select from when working on a self-improvement project. Consider them your hammer, screwdriver, wrench, and pliers—pretty basic implements, but useful for almost every job. Sometimes the goals we set require us to use multiple strategies, just as any home repair may require more than one tool. Sometimes what we've set our sights on can be accomplished with one plan but not another, so having options for how to get the job done can be beneficial—just as a fully stocked toolbox offers us the possibility of trading in a screwdriver for a wrench when the first choice isn't right.

Interestingly, these four strategies share one feature: they are all about harnessing the power of our eyes. Challenging ourselves to quite literally *look differently* can help us better our odds of succeeding at things that don't seem related to vision at all. I recently set my sights on learning to play one particular song on the drums. (I had my own reasons for wanting to do this, which I'll get to shortly.) I found that using the strategies I study in my professional life helped me persevere despite the difficulties I knew I'd experience in learning to lay down a beat—as well as those I hadn't even anticipated.

In telling you about my own use of these concepts, I hope that you, too, will be able to look at the world—and what you hope to accomplish in it—in new, creative, and better ways. By investigating the what, why, when, and how of these strategies, I have learned that

we can teach ourselves to truly see life from a different perspective. We can take control of our own perception. We can direct our eyes to see in ways that promote good fortune, and to avoid seeing in ways that don't. If we take advantage of our visual experiences, we might see our way to happier, healthier, and more productive lives every day.

Indeed, it is my hope that when you've finished reading this book, you'll be able to envision new paths forward and different perspectives. It's not only about winning gold medals and making more money, though I'll cover those things too. With more insight into your perceptual experience, you'll obtain a better understanding of your life's objectives, how far you've come, how far you have to go, and how you can get there more quickly. You'll also have a better handle on why other people may earnestly believe they've seen something you don't see, and you'll understand how that impacts the ways in which you pursue success. Once you understand when and how vision is biased, you can learn to use those biases in your favor, and to counteract them when necessary.

There is no one right way to see the world, and this book will respect that. Instead, the work I share with you aspires to offer suggestions for improving how you confront challenges by building up the cache of resources at your disposal. I'll give you a set of powerful and largely untapped perceptual tactics you can use to create and sustain views of yourself, others, and your environments that will help you see the possibilities in what you *can't* see now. To do this, I'll draw from research that sits at the intersection of social psychology and visual perception. My work, and that of others I draw from, taps into the neurobiological nature of the human visual system, which is itself a kind of interdepartmental collaboration between the eyes and the brain. When we understand the scientific basis for how we perceive the world around us, the path to most goals becomes clearer, success looks closer, and the process feels better.

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Seeing a New Way Forward

One summer, my research team asked more than 1,400 men and women from sixteen countries which one of their five senses they would least like to lose. Which would be the most difficult to live without if it were taken away? Regardless of where they were from, their age, or their gender, seven out of every ten people said that losing their sense of sight would be the worst. The majority thought that they couldn't live without vision. But actually, they could.

Let's take a step back and make sure we're on the same page with some of the fundamentals of vision science. We experience the sense of sight because of the connection our eyes have with our brains. We pick up on the brightness of the sun or register the hue of the sky with our eyes, but we only really experience *seeing* once our brains translate those sensations into something meaningful. Consider the following example. Linseed oil, mineral salts, bristle brushes, linen, and wood are products in their own right, but only when Claude Monet combined them in the right proportions and manner were we able to see the water lilies he painted outside his home in Giverny.

Alvaro Pascual-Leone is a neurologist at Harvard Medical

School, and he's famous for discovering what happens in our brains when we lose our sense of sight. He found that the visual cortex—the part of the brain at the back of our head that specializes in making sense of the signals the eyes send it—is incredibly quick to retool when something changes in how our eyes operate. He invited people with normal vision to experience life without sight for five days. The volunteers wore blindfolds. These weren't the kind you get in your travel kit when you fly internationally. They were high-tech and lined with photographic paper that would react to light exposure, so the researchers would know that none of the volunteers had seen the light of day (or bulb) since putting them on.

Pascual-Leone and his colleagues used the five days of blindness as an opportunity to teach basic Braille. The volunteers learned that the Braille alphabet is derived from bumps that protrude in various places on a two-by-three grid. The letter *A* feels like a dot popping up in the upper left corner of this grid. *B* feels like *A* but with the addition of the left-side dot in the middle row. The volunteers trained their index finger to feel the differences in where the bumps were and how many appeared at once. By the end of the five days, they weren't reading Shakespeare with their fingertips, but they had the basic alphabet down.

Each day, the researchers also invited the volunteers to lie down in an fMRI machine that would make a movie of what happened in their brains when they read Braille. On the first day, their brains were most active in the somatosensory cortex, the part of the brain responsible for what we touch and feel; their visual cortex did nothing in response to feeling the Braille letters. But by the end of the five days of having no sight, this pattern had reversed: the somatosensory cortex responded less, and the visual cortex responded more, when the volunteers felt the Braille letters. In other words, the work their fingers were doing was now registering in the part of the brain that for its whole life had been responsible for actual seeing. In less than one week, the visual cortex adapted and repurposed itself to reflect what happens in the brains of truly blind people who are pro-

ficient in reading Braille—the visual centers in the brain registered what their fingers were "seeing."

When Pascual-Leone blindfolded his volunteers, he was in a sense reinventing the process of perception. The brains of his volunteers still wanted to see, but they couldn't do it with their eyes. He was changing their medium, but they were still artists. When the brushes are gone or can't do the trick, an artist finds a new way to apply paint. Jackson Pollock dripped it from cans. Gerhard Richter crafted a squeegee to scrape across canvas. When Pascual-Leone usurped his volunteers' sense of sight, they found a new way to see.

The amazing adaptability of vision that Pascual-Leone discovered through his volunteers' experience is an example of neuroplasticity, and it's a trick for which the visual cortex has gotten quite famous in the brain-science world. But there are more reasons to appreciate our sense of sight than its chameleon nature. Consider its strength. If we found ourselves in a place that was really dark and clear, without haze in the air, we could see a candle flickering thirty miles away with the naked eye. When we look into the night sky, we can easily see the International Space Station 250 miles up, or all the way to Saturn—about a billion miles off—if we know where to look.

And our eyes are speedy. They transfer data at the rate of about 8.75 megabits per second. That's about three times the speed of the average Internet connection in the United States. We can recognize what's in front of us faster than the speed of sound. And, though the taste of salt is starkly different from that of sugar, it takes our brain twice as long to register the difference in flavor than to distinguish the face of someone we like from that of someone we don't. Indeed, scientists have discovered that it only takes $1/76$ of a second to know we're looking at the face of a friend, the car of our dreams, or the roses in our wedding bouquet.

What we see with our eyes feels real, accurate, and honest—so much so that it can be scary. In 1896, audiences saw moving images for the first time in history. French aficionados watched a short film called "L'arrivée d'un train en gare de La Ciotat" in a Paris cinema.

The fifty-second black-and-white movie featured a train heading directly toward the viewer on its way into a coastal station. Though the audience sat in their seats and the film was a silent one, the image of the steam locomotive barreling closer was rumored to have led audience members to jump from their seats in terror.

We favor and intuitively trust our visual experiences, often over everything else. We believe that what we see is an accurate and complete representation of the world around us. But that's not always the case. Take the example of the line drawing of an animal below. Give yourself about one second, but not more than that, to take a look. What is it? What's your first impression?

Most people see the head of a horse or donkey. That's what I see too. But look again, now for perhaps a bit longer. With this second glance, or from a changed perspective, you might see something quite different. A seal, perhaps? It's possible that you saw the marine animal to begin with and then with my mention of the horse you looked back and tried to figure out if there was a typo in the text.

I have shown this image to hundreds of people, most recently to an auditorium in New York City's Rubin Museum of Art full of patrons attending a lecture on the science and art of deception. I opened the conversation with this image, projected on a screen for one second. Then I polled the crowd, asking "Who saw the farm animal?" About 80 percent of arms shot up. At the same time, the remaining 20 percent started whispering, and the sound grew

quickly to a din. I heard one older woman near the front, vintage eyeglasses pressed up hard against her eyes: "What is she talking about?!"

The group grew restless. The horse-seers turned in their seats, staring at the seal-seers, who swore there was no horse there. The seal-seers were audibly riled, certain that I, along with what must be the baited and staged audience, was pranking them. Everyone was certain that what they had seen was an artistic depiction, sure, but very obviously of whichever animal they themselves had seen first.

We have a blind faith in our visual experiences that we don't hold for nearly any other source of information or inspiration. Though our reliance on and trust of our visual sense may occasionally lead us astray—as it did with my unsuspecting museum audience and with the Parisian audience unaccustomed to the sight of a train on the silver screen—visual perception is powerful.

All of this, combined, positions our eyes to be one of our greatest allies in the battle against ourselves as we work toward meeting our goals. Our eyes play a role in overcoming the mental hang-ups that plague our attempts to stay committed, the physical challenges that slow progress, and the constraints of reality that place a heavy burden on even getting started in the first place. When we tell ourselves we can't do something, it might just be that we are seeing something as more challenging than it really is. When we say that what we're up against is the impossible, it might not appear that way to someone else—and it doesn't have to look that way to us. Just as the bespectacled woman in the front row of the museum auditorium eventually understood that the drawing could be of both a horse and a seal, any of us can teach ourselves to see the world differently if we understand how to take control of perception. Our eyes are incredible tools for shaping our experience. With them, we can quite literally see a new way forward.

Setting My Sights

In high school, I played saxophone in a band that covered punk, ska, and funk tunes. We spent loads of time together driving around with the stereo cranked, listening to bands that featured horn lines and whatever songs gave solos to the sax, trumpet, or trombone. Think Chicago meets whatever was hot in the late '90s. When we heard on the radio that our favorite band from Los Angeles was coming to a nearby festival, we bought our tickets that day. Weeks later, when we realized that Goldfinger would be there without their horn section, what we'd spent on the tickets seemed like a tremendous waste. Goldfinger needed their saxophone, trumpet, and trombone, we adamantly thought. A show without that part of the group just wouldn't sound the same—so much so that our trumpet player decided we should tell the band.

In our parentally subsidized rehearsal space, on beanbag chairs in the basement, we crafted the email message jointly. In it, we professed our utter disappointment in the half-act that the festival had booked, but also offered up our services. We knew the licks for "King for a Day." We made our own for "Here in Your Bedroom." Did they want us to play with them at the show?

Goldfinger's lead singer, John Feldmann, emailed back. "Sure."

Elated, we redoubled our commitment to the basement practice sessions, chose outfits that in hindsight are some of our most unfortunate decisions in this whole story, printed out the email from Feldmann, packed up our horns, and headed off to the show.

After some pleading with security to let us backstage—they were dubious that our dot-matrix-printed email, now smeared from sweaty palms holding it all day, was legitimate—we met up with Feldmann in his trailer. He had more tattoos on his arms than I had seen on all of my friends combined to date. And as monumental a moment in my life as that was, the conversation was equally banal. He asked us about school. How old we were. How long we'd been playing music. He offered us only water, even though we'd seen

enough of VH1's *Behind the Music* to be disappointed in this form of hospitality. We practiced a few licks with him strumming his unplugged guitar. Then it was go-time, and that genteel disposition was replaced with something else entirely. Every other word was something I can't bring myself to put into print. But before the Frankenstein-like transition happened, Feldmann offered the three of us advice: "If you don't have something to play, sing—because we can't." Then we all took to the stage.

There was incredible energy and power. The sound coming from behind us through the speakers drowned out the roaring crowd of fifteen thousand in front. The mosh pit was in full force at our feet. Bodies, sweat, and dust flying everywhere. It was gross, yes, but electric.

I'd love to say that this was the start of a lifelong career in entertainment. That I spent the next decade living the jet-set lifestyle with bags under my eyes from too many nights spent sleeping on tour-bus couches. I wish I could say you might search my name on the Internet and find an article with the colon title "Where Are They Now?" But you can't. Because that was the peak of my rock stardom.

At this point in my life, I'm very much okay with the insight that I'm not going to ever become a rock star. The only way I'll appear on the cover of *Rolling Stone* is if I leave a copy of it on the dashboard of my car under a photograph of my face on a hot summer afternoon and the two melt together. I'm too scared to get even one tattoo. I don't want my hair to be pink (though I tried that briefly in high school). And I couldn't stomach the drugs and alcohol anyway. I'm at a different place in life now, and the door to real rock fame has closed for me.

But one Saturday about a year ago, I kicked it back open just a bit. I decided to become a drummer. The challenge I posed for myself was to learn enough that I could lay down a beat for one song and sound sufficiently amazing. Just one song. Just sufficiently amazing. I never wanted to be a lead singer, but I did want to have some shtick in my back pocket that was cooler than my current hobbies.

Learning one song on drums, but *really* learning how to wail on it, was going to be my magnum opus.

For a number of reasons, this was a dumb idea, or at least an unlikely quest, and I knew it from the beginning. For starters, I lived with my infant son, Mattie, and my husband, Pete, in a one-bedroom apartment in Manhattan that's smaller than most people's garage. We couldn't spare the square footage to set up a proper drum kit. Any extra space was currently housing our reserve diaper supply. We didn't know if the neighbors had earplugs, and since you don't knock on other people's apartment doors here, we couldn't figure out how to warn them that they would likely need some. This was a goal doomed to fail. Or get us evicted.

And then there was my drumming IQ. Woodwind adventures in my youth notwithstanding, I didn't know the difference between a tom-tom (it's a drum) and a tam-tam (and that's a Chinese gong). I didn't realize that you step on the pedal to make the hi-hat quiet down, or that when a drummer referred to the "bell," they probably meant the dome at the center of a cymbal and weren't asking for more of the kind that hangs around a cow's neck in Switzerland. Oh, and it's a "throne," not a seat.

I'm also not particularly coordinated. I can't rub my belly and pat my head at the same time. I fell off the balance beam more than I stayed on it when I tried gymnastics. I wasn't invited to play the second season of basketball in fourth grade because I tripped over my own feet, fell into my teammate, and knocked us both out of bounds when she had the ball. My inadequacy with a pair of drumsticks would be the obvious and first of many places where this plan would fail.

So why decide to learn drums? My reasoning is as old as motherhood itself.

When I started this adventure, Mattie was four months old and the moments of quiet and calm in my life were short-lived and only sporadically found. On most days, the ratio of time spent grooming Mattie versus myself was easily five to one. For a wash, he required

the bathroom to first be transformed into a steam room, his towel pre-warmed in the kitchen oven we no longer had time to use for cooking. I couldn't remember a time since he'd joined our club when my own elusive showers lasted longer than six minutes. Likewise, what I would accomplish in a day was now dictated by my mini-me, who couldn't care less about yearly performance appraisals or eating meals at a table. I did most of my work while sitting at a 45-degree angle, which through trial and error I computed as the balance point where I could both see my laptop's screen and hold sleeping Mattie on my chest without him sliding off onto the floor as I typed around him.

I fully realize that there's nothing new or different about my struggle relative to the challenges every other parent before me has faced. It's just that now I was experiencing them firsthand. My problem: The slice of life's pie that was cut just for me was ever-shrinking. My solution: Set a goal that was just for myself. This exercise in taking time for a personal challenge—learning to play the drums—would be a fun, new, and strange journey for me and my brain.

To be honest, this goal was also a little bit about our son. Mattie hadn't seen the close of two seasons yet, but Pete and I both wanted to instill a love of music in him as soon as possible, or at least before the end of the critical period for rhythmic development, after which he might always be that guy who clapped when everyone else's hands were silent between beats. I had just read a study conducted by a group of Canadian psychologists who found that six-month-old infants could learn some fundamentals of music. But interestingly, parental involvement was key to their success. By a flip of the coin, researchers asked some parents to sing lullabies and nursery rhymes to their babies once a week for an hour in class and to listen to recordings of the songs at home. The researchers asked other families to play games, make art as a family, and read books while music played in the background. All the parents in the study cared equally about their children's education and were actively engaged in enriching their daily experiences. The only difference was that the first

group of babies heard their parents singing along to the music while the second group heard only the recordings in the background.

Around the time the kids turned one year of age, the researchers tested their musical skills. They selected eight measures from a piece of music that none of the kids had heard before—a sonatina by Thomas Attwood—and altered every other note in the melody by just a half-step. This was a slight change, but one that had a big impact on how the piece sounded. The transformed snippet seemed dissonant, and a bit off from the type of harmonic structure that appears most often in music written by Bach or Mozart, or in common lullabies—the type of music all the children had been listening to.

The researchers found that the children paid more attention to the music their parents were making as compared to the altered sonatina. But this single difference meant many things. First off, the kids whose parents were involved in their musical training at six months of age could tell the difference between these two different types of harmony. That kids can develop a musical ear so early in life is pretty remarkable, I came to believe. When I turned on the stereo at home, it seemed to me that Mattie thought John Coltrane's 1965 recording of "My Favorite Things" live in Belgium with McCoy Tyner, Jimmy Garrison, and Elvin Jones was no more fascinating than the synthesized rendition of Rossini's finale to the *William Tell* Overture that played from the plastic star hanging from his jungle gym when he kicked it. We had work to do.

Even more impressive in the study, though, was what type of music the kids preferred. Both groups of kids chose to listen to music for the same amount of time overall. They liked music to the same degree. But those who had heard their parents sing lullabies to them had begun to develop an understanding of harmonic texture and refine their acoustic style. They knew what they liked, and they liked what was most similar to what they had learned with their parents. On the other hand, the kids who played games with their parents

Mattie for the first time. When they asked what was going on, I desperately wanted to have something to report on other than the size of the onesies Mattie was now wearing, or his preference to sleep in a position that resembled a cactus. I reminded myself that music was food for the soul and the brain, and looked for evidence of the benefits of personal time for new mothers. I would like to say that I spent those middle-of-the-night hours when Mattie needed a milk-hit gazing lovingly at my guzzling, snuggly baby. But I didn't. Usually I was holding him with one hand and using the other to pull up synopses of scientific reports on my phone. (It was the only thing that kept me from falling over dead asleep onto him.) I thought that the data would strengthen my resolve to keep up the practicing when it sounded just as grating as construction workers tearing up a road, and felt as uncoordinated as a baby emu learning to walk. But the process of searching out the published investigations—especially when I'd rather have been sleeping—and then evaluating the quality of the scholarship, understanding its implications, and translating them into a message I could use to remember why it was important to let both of us whale away on the kitchen products was intensive. It cost me time, energy, and mental bandwidth that I honestly couldn't afford to spare. And every day when I needed a reminder about why we were subjecting our ears to this, it wasn't sustainable.

Why not?

Because these strategies, the ones we use most often in pursuit of our goals, are exhausting.

The go-to tactics for maintaining motivation that occurred to me, and that most readily come to mind for others, can't meet the demands of the job. In my case, the personal reminders and self-encouragement would likely prove as successful as grabbing a pool noodle when you're standing on the upper deck of a sinking ship. The titanic undertaking of learning the drums would require something better.

And that's true for challenges well beyond just the musical one I faced. When dieting, denying ourselves the cheesecake for dessert

requires that we regularly defeat the pull of temptation. When balancing a budget, following through on making a monthly contribution to a health savings account does not feel as gratifying as spending that same money on a cappuccino at the corner coffee shop on the way to work each morning. Doing the unfamiliar thing, the demanding thing that will help us reach our goals, requires in-the-moment mastery. Repeating the mantra "I think I can, I think I can, I think I can . . ." gets old fast. And when we try to rid our minds of temptations and vices, our efforts backfire.

Female dieters in search of solutions tried out this effortful approach. Following the direction of experimenters, they worked to avoid thinking about eating chocolate. Another group was told to indulge their imaginations and savor the illusory sensations of eating chocolate in their minds. While you might think that imagining the taste and feel of that silky sweetness would whet dieters' appetites for the delicious treat, it didn't. Those who actively tried to stop their thoughts from wandering toward the delicacy ate eight or nine pieces later in the study, when offered the chance to sample Cadbury Shots and Galaxy Minstrels. Compare this to how much was eaten by the dieters who had thought intensely about how chocolate smelled, tasted, and melted away in their mouths. These dieters ate, on average, only five or six pieces. As with the first group of dieters, the strategies we generally use to approach the goals that matter most are the wrong ones. They aren't making our tough jobs any easier, because they deplete our limited reserves of energy, time, and interest.

This matters because, in many cases, our mental states have a bigger impact than our physical ones on our ability to persevere past obstacles. We don't realize it, but when we assess our own stamina and take stock of our strength and pep, our judgments affect our performance even more than the actual energy our bodies have available to do the job. If we think we've worked hard and believe we have drained our mental energies, we aren't as effective later on. That's regardless of whether we're actually beat or well rested.

To evaluate the importance of self-assessments relative to the physical states of our bodies, students from Indiana University agreed to do some pretty boring but depleting things. Everyone started the study by crossing out every letter *e* that appeared in a page of text. Boring, I agree, but simple enough to do, which is why it didn't take too much out of individuals who were asked to cross out *e*'s on the next page as the second part of the study. However, it was precisely because of how easy the task was that when the rules changed for another group of participants, it took a lot more out of them than it had the first time around. This group, for their second task, was also told to cross out every *e* in the text—except when another vowel followed the *e* in the same word (as in "read") or when a vowel was one letter removed from the *e* in either direction (as in "vowel"). It's tiring just trying to figure out what these new rules were.

The experimenters didn't leave it at that, though. They made up false claims about the effects of colored paper on human energy levels. They told participants that the source of their physical state might originate from the color of paper in front of them. Regardless of whether they did the easy or the taxing assignment, half were told that yellow paper exhausts people's attention and ability to think carefully. The others were told that yellow paper energizes, replenishes attention, and encourages careful thought. Then the researchers measured everyone's concentration and perseverance in a final test of analytical thinking.

Though they were just a ruse, the claims about the impact of paper color had real power. The people who were told that the yellow paper contributed to exhaustion gave up faster and made more mistakes when trying to solve anagrams. They were much slower to recognize that a pattern they were searching for had appeared. And they were unable to distinguish between poorly written and well-supported arguments they read later on.

It didn't matter whether they had just completed something challenging or finished a pretty easy job; their belief about whether

people's bodies, and health-care software to process the numbers faster than humanly possible. 3M's goal for the creative pursuit of new designs is a lofty one, but by all reports it has designed a corporate culture that allows the company to meet it. It expects its creative innovation teams to give 15 percent of their time to the free exploration of ideas of their own choosing, which may or may not turn into anything lucrative. The research and development departments present posters at internal science fairs to showcase projects still in development, awaiting potential collaborators' involvement. In the five years since 3M's launch of this initiative, net sales attributed to products that weren't on the books five years earlier have topped 30 percent every year.

The song Pete suggested and that I elected for my percussive debut followed 3M's principle for goal setting.

And when I tried the same goal-setting approach early on in my lessons, the benefits were palpable. My first attempts to coordinate all four of my limbs while playing "Your Love" were far from graceful or effective. I chose to set my sights on something more manageable. I focused first on the snare and the bass drum, leaving out the hi-hat and ride cymbal. My right arm lay in wait at my side, presumably at the ready to deaden the incoming sound by covering one ear at a time. Tapping my right foot on the bass drum pedal on each of the four beats of the measure and whacking the snare with my left hand on the second and fourth, I am embarrassed to say, required that I take the song down to about half the speed of the recording. But this was where I started and stayed; it was a relatively small but manageable goal.

After executing the snare and bass drum pattern became less of a fluke and more the result of intention, I switched up the parts. My right arm reached across my body to *chink-chink* on the closed hi-hat. My right foot was squarely positioned on the bass drum pedal; I tried *tap-tapping* on the hi-hat at twice the rate of my foot. None of these combinations would rock music make, but breaking down


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situated behind is softly and lusciously pixelated. The backdrop is blurred and seems to swirl like a whirlpool. The effect is mysterious and alluring, so much so that the lens, now 180 years old, recently saw a resurgence in interest with a Kickstarter campaign to finance its remanufacturing, exactly to Petzval's original specifications, for the commercial market.

Petzval had invented a way to shoot with what photographers call open aperture, where the foreground is in focus while all that serves as the backdrop is blurred. The effect highlights the subject at the expense of any surroundings that might otherwise distract from it. Petzval's nineteenth-century optical breakthrough serves as the basis for the best-designed portrait lenses today—and the visual effect it produces is the basis for one of the most inspiring strategies to motivate our goal pursuit: narrow focus.

Narrowing the Focus of Our Visual Attention

It was an early spring blizzard that had led New Yorkers to batten down their hatches. The city's streets were sprayed in a thick white snow that few people dared to disrupt. Despite the weather, I headed out for what ended up being an "only in New York" kind of adventure. I had been invited to speak about visual attention and optical illusions to an eclectic group of individuals. They drank bee-pollen-spotted vodka cocktails and noshed on beet focaccia while I talked science. There were more Academy Award winners floating around the room than I had handbags in my closet. Business cards came wrapped in bespoke paper you could plant in the ground and watch bloom. I am pretty sure the guests had flown in from every continent but Antarctica.

I arrived early to set up but had loads of time to kill before any of my responsibilities kicked in. I started up a conversation with a guy, Jeff Provenzano, who I thought was assigned to be my tech assistant. I was wrong. He is a professional skydiver. He is heavily sponsored


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